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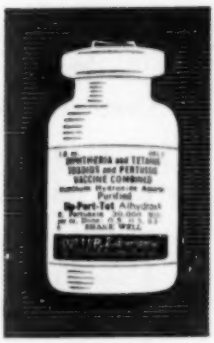

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Where?	Why?	How?	References
in ABORTION	to help mitigate formation of hematomas in Rh-negative mothers; and in toxemias	citrus fruits and their concentrates and vitamin C supplement	Surg., Gynec. & Obst. 94:257, 1952
in ALCOHOLISM	to force fluids; and help assure adequate nutrition	vitamin C orally in large doses after acute stage has been brought under control	Virginia M. Month. 79:70, 1952
in AVIATION MEDICINE	to replenish vitamin C lost in hypoxemia or hyperventilation; and provide quick energy	liberal quantities of fruit or fruit juices	J. Aviation Med. 21:283, 1950; Mil. Surg. 108:125, 1951
in BURNS	to improve nutrition prior to grafting; and promote healing	large doses of vitamin C as soon as patient can eat	Am. J. Surg. 83:746, 1952; GP 5:35, 1952
in OBESITY	to appease appetite during reducing; and combat hypoglycemia	50 calories of citrus fruit (e.g. 4 oz. fresh orange juice) before lunch and dinner	Postgrad. Med. 9:106, 1951
in PEPTIC ULCER	to avoid vitamin C deficiency; aid healing and assist in weight control	2-3 oz. strained citrus fruit juice in water (or milk) at end of meal	Sandweiss: "Peptic Ulcer," 1951; "Low Cost Therapeutic Diets," 1952
in RHEUMATIC CONDITIONS	to maintain good nutrition without obesity; provide purine-free food; and help reduce inflammation	for arthritis, high-vitamin diet; for rheumatic fever, orange juice 200 mg. daily; for gout, diet prominent in fruits, including citrus	Am. Pract. 2:577, 1951; "Current Therapy," 1952

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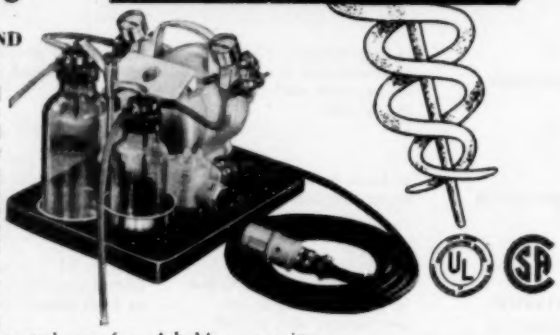

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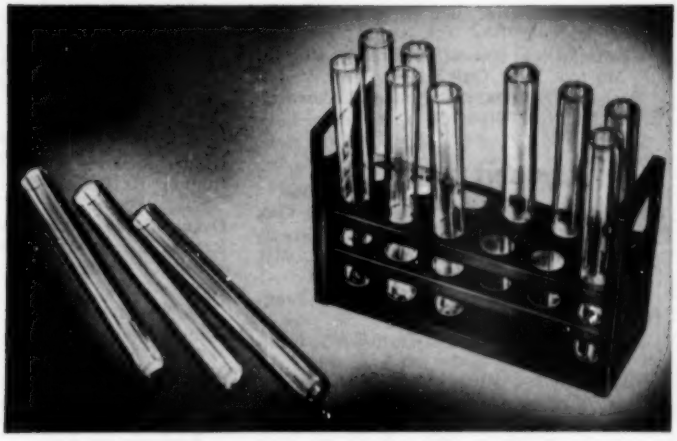

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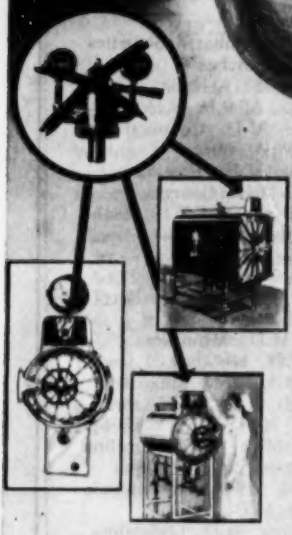

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(1) Culbert, R. W., et al: Amer. J. Pub. Health, 40, 1089-1095 (1950).
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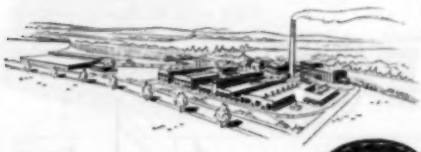

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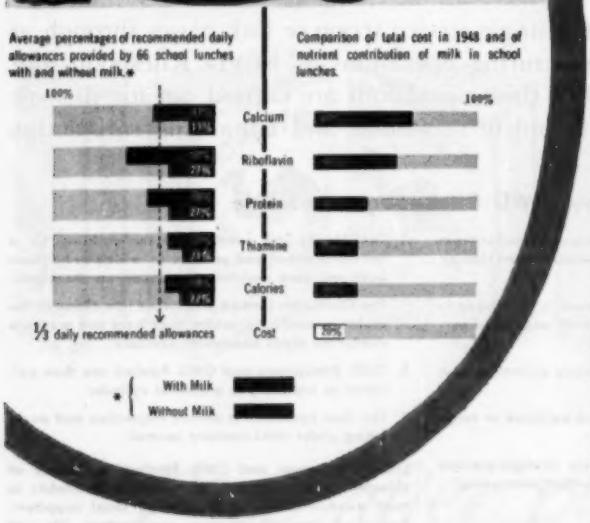

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[1]Dreisbach, M. B. and Handy, E. School lunch management in relation to nutritive value, cost and acceptance of foods served. U.S.D.A. Pa. 114 (Jan.) 1951.
[2]Meyer, F. L., Brown, M. L., and Hathaway, M. L. Nutritive value of school lunches as determined by chemical analyses. J. Am. Diet. Assn. 27:841 (Oct.) 1951.

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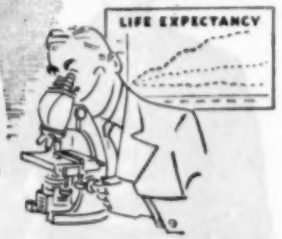

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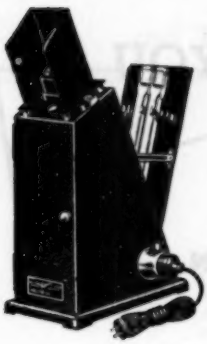

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American Journal of Public Health
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Volume 43 January, 1953 Number 1

One of the thousand, and more, attending the Memorial Session was heard to say, "Dr. Mountin scarcely knew me from Adam, but I thought of him as my friend. He was forever out in front battling for things I wanted done. He put into words the ideas I couldn't express. Often he helped me out by backing unpopular causes without thought to their effect on his own fortunes." Tributes from five leaders who worked closely with Joseph Mountin add rich meanings to the spontaneous outburst of this unnamed member.

Advancing the Frontiers of Public Health*

Introduction to the Joseph W. Mountin Memorial Session

LEONARD A. SCHEELE, M.D., F.A.P.H.A.
Surgeon General, U. S. Public Health Service, Federal Security Agency, Washington, D. C.

PERIODICALLY, the Public Health Service discovers in its family—I suspect this is true in any long-established institution—a man who has achieved a potent and persistent influence without attaining the full measure of public acclaim due him. No single research discovery, no particular crusade bears his label. Yet, after he has passed from the scene in death or retirement, the organization he loved and the profession he adorned feel his imprint. Mention his name and mark how faces light up and reminiscence begins to flow, as though one had struck fire in his contemporaries and succeeding generations. Such a man was Joe Mountin.

Six months before his death Dr. Mountin participated in a "Symposium on the Arctic Health Research Center" at a general staff meeting of the Public Health Service. His opening sentences may be taken as an epitome of his major contribution to public health.

"It might seem incongruous," he said in that deceptively hesitant manner we knew so well, "that at the last staff meeting I appeared before you as an apologist for the aging and made a point of identifying myself with that group;

* Presented before the Joseph W. Mountin Memorial Session at a Joint Session of the Health Officers, Industrial Hygiene, Medical Care, and Public Health Nursing Sections of the American Public Health Association at the Eightieth Annual Meeting in Cleveland, Ohio, October 23, 1952.

now, two weeks later, I come again as an Arctic explorer. That incongruity is something I would like to make a point of."

Everyone who knew Joe Mountin would like to make a point of the amazing diversity of his interests. He might call it "incongruity," but the ripe fruit of his brilliant mind was this very recognition that whatever affects the health of man is the proper study and a proper field of public health action. With recognition went his complete identification with the problem. Joe Mountin had in a very real sense the curiosity and instant response that Judge Learned Hand has called "magnificent meddling": the force that drives man onward in his quest for mastery of the world he lives in.

The papers to be presented here by four distinguished members of the public health profession—friends and co-workers of Joseph Mountin—will accomplish just what he would most enjoy. They will provoke discussion—long after this session is over—in four vital sectors on the advancing front of public health: Chronic Disease and the Aging Process, Health Centers and Regionalization, Medical Care, and The Role of the Local Health Department. Mountin served with the advance guard, exploring each of these sectors and providing us with much of the intelligence upon which our public health strategy, tactics, and logistics are based.

It would be futile to try to describe the entire range of Dr. Mountin's contributions in a few minutes of introduction. The other speakers will tell you how, with undaunted courage, undying faith, he kept the eyes of public health on its advancing frontier. They will tell you, too, how he often held folks' feet to the fire a little—so that we would move on toward the frontier. Let me give you a few instances in which he performed both tasks for his own organization—the Public Health Service.

In Title VI of the Social Security Act and in all succeeding legislation providing federal aid to the states for health purposes, there is a phrase which Joe Mountin never let us forget. It instructs the Public Health Service to provide "technical aid." In Joe's mind, this mandate epitomized the destiny of the Service far more precisely than did the administration of financial grants. In 1936, we lacked both organization and personnel to discharge the responsibility of technical aid. That situation was to be corrected speedily.

Joe brought to the Service our consultant staffs in public health nursing, public health education, dental public health, merit systems, and administrative management. He made our district (now regional) offices effective service units to the states. He was the architect of our wartime reconnaissance surveys and emergency health and sanitation programs. Although the official record does not reveal it, the fine hand of Joe Mountin was in the drafting of the Lanham Act of World War II—in the administration of which the Service also had an active share. To these many ramified activities, he recruited some of the ablest minds in the Service.

He had a passion for ideas—those of other people as well as his own—and he would back the man with an idea to the limit. To this capacity of Joe Mountin more than to any other single factor, the Public Health Service owes many of its current contributions to state and local health programs. "I am not interested," he used to say, "in reasons why you can't do it."

The word "demonstration" took on new meaning under his influence. He interpreted it as "pilot plants" which young and eager men developed into the small-film x-ray surveys of tuberculosis control—the first mass screening technics for diabetes and heart disease control—and the topical application of fluorides to children's teeth.

He had little faith in a business office as the proper setting for a health specialist whose mission in life is to render technical aid. Separated from sources of new knowledge, new technics, and demonstration of new methods, such experts become, he said, "nothing more than circulating, articulating, reciprocating, itinerant gossips."

Thus, he conceived the idea of "a center of technical competence"—a center for research and training, for instant and efficient service to the states in specific operational fields. That is what we have tried to make our Communicable Disease, Environmental Health, and Arctic Health Research Centers in these past six years. In future years, as other broad fields of public health activity expand, there may be additional centers, each of which will be in fact, if not in name, a living memorial to Joseph W. Mountin.

We in the Public Health Service feel a deep, personal pride that the American Public Health Association has chosen to honor our friend and colleague in this Memorial Session. There is scarcely a part of the Service that he did not touch in some way—and inspire. Few men in our organization, or any other, can claim such a numerous and heterogeneous friendship as does Joe. I use the present tense; for everyone will agree that Joseph W. Mountin is with us, and will ever remain with us—in his ideas, his far vision, his devoted disciples, and his great accomplishments.

1952 Journals Wanted

APHA headquarters has distributed its entire supply of April, 1952, and June, 1952, issues of the *American Journal of Public Health*, and the 1951–1952 *Year Book*. If there are any APHA members or subscribers who no longer require these numbers, it will be appreciated if they will mail them, collect, to—Circulation Department, American Journal of Public Health, 1790 Broadway, New York 19, N. Y.

Eloquent testimony to the breadth of Dr. Joseph Mountin's interests lies in the striking fact that in this tribute, and the three that follow—each composed largely of quotations from Mountin's writings—no two of the speakers use the same quoted words.

Chronic Disease and the Aging Process*

VLADO A. GETTING, M.D., DR.P.H., F.A.P.H.A.
Commissioner, Massachusetts Department of Public Health, Boston, Mass.

DURING the past decade it has been our privilege to work with General Mountin. Joe, as he was affectionately known to all his associates, served well and arduously on numerous committees of the American Public Health Association and shared in the development of many programs. At the various meetings of the State and Territorial Health Officers Dr. Mountin and his able staff always stimulated the progress and evolution of programs in public health. It is almost impossible to review the development of any program in public health in the past score of years without finding Joe's guiding hand somewhere in its development.

He brought out in "The Health Department's Dilemma" the need of health departments to evaluate their programs carefully, to consider the characteristics of the total population they serve, saying that health is positive and that public health responsibility must be geared to promoting ever higher standards of human efficiency and satisfaction.[1]

The program must consider the real health needs of the people, including economic and social factors and morbidity and mortality from all causes, particularly heart disease, cancer, and arthritis.[2-4] "There are," he said, "many areas of unfinished business in public health—and even more important, many which are not yet started. The general aging of the population, the increase in chronic diseases, the problems associated with our complex industrial and social environment, all combine to create a new setting for public health."[1] In a later paper he further stated: "In most cases very little is known about these older people and their characteristics—their occupations, sources of income, living arrangements, health status, leisure time activities, and interests. Very frequently the information, once assembled, suggests a suitable course of action or further avenues of approach."[5]

In discussing the role of the health department in the field of chronic disease he said that preventive measures should begin in youth not in the middle of old age, through programs such as dental hygiene, fluoridation, control of obesity, accident prevention, control and stabilization of chronic disease through multiple screening, periodic appraisals or regular check-ups with the family physician.[6]

* Presented before the Joseph W. Mountin Memorial Session at a Joint Session of the Health Officers, Industrial Hygiene, Medical Care, and Public Health Nursing Sections of the American Public Health Association at the Eightieth Annual Meeting in Cleveland, Ohio, October 23, 1952.

In 1934 he stated: "Up to the present time, health departments have been concerned primarily with the prevention of disease. Education and regulation are the principal instruments used in the approach. It is now being recognized that preventive and curative measures are closely related and that each scientific advance necessitates a larger amount of personal service in administrative practice. Health departments as a rule do not favor entering curative fields or increasing the personal service content of existing programs. On the other hand, a number of persons concerned with public administration as a whole take the view that the community might profit if the health department were given administrative and budgetary responsibility for those governmental services which are designed to promote or restore health since they are equipped to do so because of training and community contact." [7]

Seventeen years later in discussing the changing patterns of state health services, he stated: "Programs of personal health service already in operation have been expanded by extension into several new areas of public health interest. Almost every state department is now engaged in measures for heart disease, while a few report activities for diabetes and arthritis and rheumatism. More and more, hygiene of aging, directed toward the promotion of physical and social fitness in a population group, daily becoming increasingly significant, is being recognized as a fruitful field of public health endeavor." [8]

These quotations are but illustrations of the broad thinking that Joe utilized in his work. I am convinced that the development of many programs in the fields of chronic diseases and for the aging, both in the Public Health Service and in state and local health departments, are due to a large extent to the stimulus which he gave these programs.

Those of us who had an opportunity to work with him on committees are quite familiar with his earnest attitude. Although not aggressive in appearance, Dr. Mountin was one of those leaders of leaders who was able to have others absorb his suggestions in the progress and development of a program as if they were their own thoughts. In arguing for clear thinking, for analysis of the situation, and for carefully planning the program, his thoughts would come so rapidly that he often had difficulty in expressing himself; and yet in a quiet and earnest manner he was able to influence the work of other members of a committee, guiding their thoughts in a way which truly has made him one of the great leaders of public health in the twentieth century.

He carefully separated the aging process from chronic illness. "Actually," he said in an address delivered last year at the Seventy-ninth Annual Meeting of the American Public Health Association in San Francisco, "aging is not a disease nor is it necessarily accompanied by any specific disorders. Many of the older people have no clear-cut disease or they have a disability which they have accepted and learned to live with. In health services for the aging, we must concentrate on the normal or apparently well individual, rather than on the person with established disease. Important as specific diseases are to the health of older people, we must make a distinction between the control of these diseases and a program for health maintenance in the later years. We must determine instead the kind of health guidance which will enable older people to live out their lives in reasonable security and satisfaction." [5]

In a paper presented at the Second Annual Citizens Health Conference of the Kentucky Public Health Association in 1950, Dr. Mountin wrote: "In the field of health and welfare, the middle of the twentieth century finds few factors more significant than this: for our coun-

try this is an era of an aging population." He continued, "Aging represents an economic, social, educational, and financial, as well as a health and medical problem, or at least an adjustment in each of these areas."[6] In a study of the demographic history of the United States he pointed out that the median age would rise from 23 years in 1900 to an expected 34 years by 1975, and that by 1960 10 per cent of the population will be over 65 years old. Thus, he said, we cannot ignore these 11 million population over 65 years of age who must remain productive and independent. He reminds us that there has been phenomenal progress in the development of programs for children, and he suggests that the same type of approach as was used in studying the child and his needs is now needed for the mature and older members of the community.[9, 10] In addition to prevention and control of chronic diseases, health authorities must turn their attention to the hygiene of the aging. In discussing "Public Health and the Aging" he wrote: "In speaking of the health needs of the aging, it is easy to fall into two errors. One is to stigmatize and segregate the aging, endow them with special rights and privileges, and set them up as a group apart. This is not only harmful to them as individuals but also disruptive of our social and familial patterns. The other danger is to consider aging as synonymous with disease. Aging is not a disease. It is not a state of ill-health. Actually we grow old from birth—indeed, even before birth."[6]

There are three types of aging, according to Dr. Mountin: (1) chronological; (2) physiological, both physical and intellectual; and (3) psychological, including acceptance of the older person by the community. Public health approach to the problem of the aging has four essential phases: (1) the hygiene of aging, consisting of diet, rest, recreation, and the developing of good personal health habits; (2) prevention or early finding and stabilization of chronic diseases and impairments; (3) rehabilitation and retraining, which will enable the older person to make the adjustments required because of the exigencies of his age; and (4) education to break down the prejudices against older people by employers, community, and the older person himself.

There are many different ways in which a health department can participate in community programs designed to assist the aged. For example, he suggested that by making staff members available to participate in lectures or discussions to the numerous and varied groups organized among our older citizens, and by furnishing these groups with appropriate literature, films, or other educational devices the health department can often help these older people to help themselves make the necessary adjustments. Some health departments may find it possible, he said, to establish health guidance and counseling clinics for older people in a manner similar to the health clinics for mothers and children. They might organize or sponsor classes or make other uses of group activities to promote adult health. "Certainly," he continued, "the health agency is the logical place for older people to turn for general guidance in such areas as diet, exercise, rest, physical appraisal, early detection of impairments, accident prevention, mental and emotional problems, and employment counseling from the health point of view."[5]

While Dr. Mountin stimulated not only health departments but also voluntary agencies to assume a vital role in the development of a community program for older people, he indicated that such a program must be a community program shared by all. "Individual health counseling," he stated, "should be an integral part of the care furnished by the private physician." Many volun-

tary organizations may be expected to provide services or arrange special programs. If the health department develops an understanding of the problems of the aged and arouses community interest, he was convinced that the health department need do only a small fraction of the total program itself, and that the community as a whole will awaken to its responsibility.

He clearly outlined the ways in which various public health personnel can participate in a program designed to assist the older person as well as his family to understand and cope with any special problems which may arise as a result of the aging process. The public health nurse, for example, can play a very strategic role in helping families make necessary adjustments, in assisting the family to learn the skills necessary to care for ill or infirm persons, and in developing visiting housekeeping services. In addition, he suggested that bedside care should be increasingly included in the services provided by community nurses.

"Public health engineers," he said, "may evaluate sanitation facilities in terms of the adjustments that might be necessary for an aging population, including standards of housing for older people and particularly lighting, heating, and ventilation. Improvements in design in housing can do much to reduce home accidents, a leading cause of death and disability among the aged." [5]

Similarly, he described how other health personnel can participate in a program for the aged, and how each of the basic seven functions of a local health department can, in its regular content, include consideration for the aged and chronically ill. He believed, like most students of chronic illness, that a periodic health appraisal is important.[11] All thinking persons who analyze the problem of giving such periodic health appraisals realize the difficulties of man power, costs, and equipment. He suggested that a way around these obstacles may be afforded by tests and limited examinations of the screening type.[12] "As medical science advances," he said, "quick methods for screening purposes may be expected to improve like their more elaborate counterparts. I think we are warranted in recommending, at least on a trial basis, limited screening procedures in the general population and meticulous examination for selected individuals. This seems a reasonable and feasible plan for extending the benefits of periodic health appraisal to an ever-increasing number of adults." [13]

In outlining the health program for the aged and chronic diseases, Dr. Mountin brought into consideration not only health factors but also the social and economic problems and the need of acceptance of the older person by the community. The problem of developing a community program for the aged is not the sole responsibility of the health department or the healing arts professions.

In closing, may I quote from the very last paragraph of Dr. Mountin's paper on Community Health Services for Older People: "The efforts of an enlightened citizenry, combined with the growth and expansion of local health services, can mean a new era of health for our senior citizens. Then, indeed, can the goal of living through the later years gain new meaning and purpose." [13]

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Industrial Medicine Fellowships

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For another generation we shall be occupied in carrying forward the broad organizational plans that Mountin so stoutly set in motion, but because we are so occupied we will not be shielded from his warning that if we have no further proposal to offer "decisions must be referred back to the people and their political leaders."

Health Centers and Regionalization*

JOHN B. GRANT, M.D., F.A.P.H.A.

Associate Director, Division of Medicine and Public Health, The Rockefeller Foundation, New York, N. Y.

JOE Mountin's chief characteristic was the embodiment in his philosophy of a comprehensive horizontal rather than a vertical specialized approach to problems of public health. Another characteristic over the years was the manner in which earlier general principles were later amplified in detailed recommendations. This is substantiated by the annotated list of his publications in the field of public health compiled by E. G. Kleinsmith. It is a privilege to participate in the Memorial Session to a man who will have a permanent historical place in the development of public health in the United States as it will be constituted in the next generation.

Organization is the cornerstone required for the advance of any frontier of public health. This was realized by Mountin whose most lasting monument will probably prove to be his senior authorship of reports on various aspects of regionalization presented in three lasting documents, viz: Health Service Areas: Requirements for General Hospitals and Health Centers, proposed in 1945 [1]; Health Service Areas: Estimates of Future Physician Requirements in such areas, proposed in 1949 [2]; and A Plan for Coordination of Areas and Hospital Facilities, proposed in 1950 [3]; Mountin could not conceive of health centers divorced from hospitals. In fact, in rural areas he considered them as medical care outposts in regionalization schemes. Consequently his thinking on the above two topics is not separated in this review.

Mountin was a pioneer in the United States in advocating the inseparability of administration of curative and preventive services which is repetitive throughout his writings. As early as 1934, in discussing the evils of multiplicity of autonomous agencies, he stated [4]: "On the other hand, a number of persons concerned with public administration as a whole take the view that the community might profit if the health department were given administrative and budgetary responsibility for those governmental services which are designed to promote or restore health since they are equipped to do so because of training and community contact." This concept was translated into detailed proposals in 1940 when he postulated that all tax-supported medical facilities and services should be concentrated in a

* Presented before the Joseph W. Mountin Memorial Session at a Joint Session of the Health Officers, Industrial Hygiene, Medical Care, and Public Health Nursing Sections of the American Public Health Association at the Eightieth Annual Meeting in Cleveland, Ohio, October 23, 1952.

single branch of government, which he believed should be the health department. This paper concludes with the statement of the danger, should health departments fail to seize the opportunity.[5] "If the American Public Health Association and other professional groups have no further suggestions to offer, decision must be referred back to the people and their political leaders. We may rest assured that rather simple and direct steps will be taken, and it is entirely possible that the particular interests represented by the membership of this Association may become a subordinate consideration in a broad social program that features other issues."

In 1943, in discussing "Tomorrow's Health," he directed attention to the changing pattern of disease incidence and to the possibilities for mass application of the new diagnostic therapeutic procedures which he conceived to be an extended responsibility of the health department.[6] "Suffice it to say, however, that public health agencies—which presumably represent the consuming public and which are dedicated to raising the general level of health—cannot without losing their proper status refuse much longer to explore methods for extending medical service to all groups of the population. By this is not meant a mere academic or dilettante type of interest, but one that manifests itself in a desire for participation in actual organization and management of operating program."

In 1944 he reiterated that: "The effective operation of a national program of medical care requires that for each level of government—federal, state and local—administration or the supervision of administration should be by a single responsible agency . . . health agencies are believed best fitted to discharge the responsibilities incident to administration of a nation-wide medical program."[7] But, increasingly, throughout his thinking he postulates that integration requires regionalization for implementation.

In 1945 he was the senior author of Bulletin 292, "Health Service Areas,"[1] providing a nation-wide plan for coordination of hospitals and health centers. In 1946 he quotes the official statement of the American Public Health Association[8] as to the responsibility of health agencies in a national health program and placing the responsibility of administration of tax-supported medical care programs on existing public health agencies. As chairman of the Subcommittee on Medical Care, Mountin was chiefly responsible for the[9] joint statement of recommendations by the American Hospital Association and the American Public Health Association on coordination of hospitals and health departments.

Mountin was co-author of[10] "The Health Center—Adaptation of Physical Plants to Service Concepts" in which the most desirable of the four patterns described was the one which would "bring together in one building or in a group of related buildings, the health department, the hospital, and offices for practicing physicians." Implementation of Mountin's concept of integration, however, raises a very fundamental issue which Goldmann has stated succinctly,[11] "as to whether medical practice could and can be organized on the basis of medical centers or whether such an approach would be contrary to the best interest of the people to be served, the health professions, the hospitals, and the community." . . . because if "the center serves as the headquarters of physicians in related groups in private practice as well as of personnel employed by public and private agencies, reorientation of public policy is possible" (and necessary).

In 1949, Mountin was again senior author of Bulletin No. 305 "Estimates of Future Physician Requirements by Health Service Areas."[2] These service

areas were discussed in his paper, "Changing Concepts of Basic Local Public Health Services," [12] in which he states "public health workers should now (with the Hospital Construction Act, 1946) consider the development of local health units in a nation-wide pattern integrated with the planning for hospital and health center buildings. . . . The integration of public health activities in these patterns of medical service areas would be a big step forward in providing better and fuller health services. . . . Specialized staff members of hospitals and health departments could become available to both agencies on a cooperative basis; the result would be improvement of community health programs in such fields as tuberculosis, venereal disease, cardiovascular diseases, diabetes, mental hygiene and cancer control."

In 1950 he proposed "A Plan for Coordination of Public Health Areas and Hospital Facilities" [5] presenting an illustrative pattern for organizing a nation-wide system of local health units in which there would be coordination of all medical and health facilities within an area on a regional basis which took into account the consideration of all factors fundamental to the concept of hospital and health department integration. The publication quotes the following from the joint statement of the American Public Health Association and the American Hospital Association as to the necessity of coordination: "Preventive and curative medicine have reached the stage when they are no longer separable and it is necessary at the present time to bring them together physically and functionally. The close physical and organizational association of health departments and hospitals will provide a valuable step toward this essential goal." It was felt that the plans, although tentative, of the state hospital surveys gave a meaning to the theoretical discussions that had gone on for years about hospital integration.

The joint statement was the crystallization of the opinion of the necessity for this and constitutes a fundamental principle of public health planning. The publication itself was presented as a concrete pattern "which might point the way for the practicable application of this important principle to the entire nation." The Michigan Hospital Survey (1946) [13] based its delineations of hospital service areas and regions on trade areas. It proposed that there should be 21 regions based on the two teaching medical centers. This is approximately 300,000 population per region. The report stated that it is essential that these regional hospitals provide services that smaller community hospitals cannot afford and consequently should have a minimum of 200 beds. An important consideration is that if regional hospitals serve too small a population, the overhead costs of the specialized services become administratively uneconomical.

Mountin's concepts as to the details of regionalization and health centers are best expressed in the joint statement of the American Hospital Association and the American Public Health Association [9] from which the following is quoted:

> Hospitals and health departments have a common interest in providing the best possible technical facilities and administrative tools for the further development of both the preventive and therapeutic aspects of medical practice. The expression of this relationship in terms of greater coordination of the activities of hospitals and health departments has already occurred in some communities, but a great deal still remains to be accomplished in this direction. . . The common use of laboratory and clinic facilities, which is difficult to achieve when the two institutions are physically separated, occurs readily when they are housed together. The planning of integrated programs is facilitated by joint housing and their administration is made smoother and more efficient.
>
> The health needs of rural areas which are isolated, thinly settled, and unable to support a general hospital may be met by the con-

struction of outpost health facilities. These facilities would house the offices of physicians and dentists, diagnostic facilities, the office of the local public health nurse, public health clinics, and in some areas a nursing unit for maternity care and minor illnesses.

The establishment of hospitals and public health facilities in many rural areas will require entirely new construction. It is recommended that in these areas hospital and health department facilities be constructed as an integral whole. . . Many advantages to the public, the health department, and the hospital may be derived from joint housing of hospitals and health departments. A single health and medical center means greater convenience and continuity of service for the public. The pooling of resources resulting from joint housing enables the community to obtain more adequate facilities and better trained personnel than it could otherwise afford. . . Joint housing facilitates follow-up by public health nurses of patients after they leave the hospital, while the medical staff benefits from closer association with public health programs. Furthermore it may stimulate increased public interest in the hospital since more people will visit the institution for health promotion and preventive services rather than as a last resort.

There are many ways in which health department and hospital personnel can work together effectively. . . In urban as well as rural areas the public health nurse can provide continuity of care for discharged hospital patients by carrying out the treatments recommended by the physician and giving home nursing care and supervision. . . There are several ways in which the medical staff of the hospital can contribute to the activities of the health department. Arrangements may be made for members of the visiting staff to conduct specific health department clinics on a part-time salary basis.

The control of tuberculosis, venereal disease and other communicable diseases affords numerous opportunities for joint action by hospitals and health departments. Tuberculosis and venereal disease clinics belong properly at the general hospital, not at the city hall or some other nonmedical institution. . . Laboratory service is essential to communicable disease control as well as to the proper functioning of hospitals. Health departments and hospitals have a vital interest therefore in the planning and development of adequate laboratory service.

Maternal and child health clinics should be easily accessible to the persons served and many must be conducted in communities or neighborhoods which do not have hospitals. Nevertheless, there are numerous instances where the general hospital is easily accessible but is not utilized for such services. This situation, which has arisen from the separate development of hospital and health department facilities, prevents both hospital and health department from operating at their maximum effectiveness in the protection of maternal and child health. Health department prenatal clinics for the adjacent neighborhood should be conducted in the general hospital in order to insure continuity of care, easy transfer of records, and adequate postpartum follow-up.

Mountin considered that multiplicity of agencies was the chief evil to be attacked. The summation of his thinking was that this evil required regionalization under a single administration for its removal. His guiding principle was that enunciated by the British Ministry of Reconstruction in 1919: "The first principles of good administration require that when a special function is to be undertaken, it shall be undertaken by one governing body for the whole community needing the service, and not for different sections of the community by several governing bodies."

The level of health services of the nation in 1975 will be proportionate to the degree that Mountin's recommendations are implemented for integration of all services through regionalization under a single administration.

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Occupational Health Services Urged

Further expansion of occupational health services in industry to conserve the health of American manpower was urged by the Advisory Committee to the Public Health Service on Occupational Health at its annual meeting with the staff of the Division of Occupational Health in Washington, D. C., in October, 1952.

The committee, which is made up of industry and labor representatives, pointed out that 85 per cent of American workers do not have the benefit of occupational health services. Sickness absenteeism in industry accounts for a loss equivalent to 2,000,000 workers off the job every day. Occupational health services are notably absent in small plants, which employ over 70 per cent of the nation's workers.

The committee endorsed the plans of the Public Health Service to carry out research and demonstrations on administrative and organizational technics for providing occupational health services, particularly in small industries and with groups of workers. It recommended that the Public Health Service explore and utilize the available mechanism of research grants to universities, foundations, and other research organizations to encourage their efforts in occupational health, and develop methods and plans for bringing a sufficient number of better trained personnel into occupational health work.

Experience has shown that plants with adequate health services can reduce sickness absenteeism by as much as one-third and even one-half, which is equivalent to adding as many as 1,000,000 men to the labor force.

Dr. Joseph Mountin thought and planned and strove in terms of very practical and detailed administrative programs, yet he remained ever aware of their broad implications. Of the inseparability of preventive and curative health services he said, "On this obvious truth there is little if any intellectual disagreement, but unfortunately it finds too little expression in action programs."

Medical Care*

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ALMOST two-and-a-half centuries ago Jonathan Swift remarked: "No preacher is listened to but Time, which gives us the same train and turn of thought that older people have in vain tried to put into our heads before." This observation is still valid for all human endeavor in fields beyond the limits of technology. Personalities in the intellectual vanguard may clearly see social problems that are dimly discernible, if not invisible, to their contemporaries. They may resolutely advance new principles of action derived from proved facts. Yet, they are unlikely to witness substantial changes until the time is ripe, until ideas once regarded as radical have become tenets of conservatism. A striking illustration of this old truth is afforded by Joseph Mountin's lifelong effort to help develop a new pattern for the social organization of medical care.

Joseph Mountin belonged to the small group of professional health workers who early realized that "in one very essential field—namely, organization—medicine has not kept pace with its own scientific advancement or with the social and economic changes in the body politic."[1] With creative imagination and common sense he crusaded for the continued adaptation of medicine to social needs and uses, and he had the courage to state and defend unorthodox views at a time when many others were aloof, if not hostile, to any proposal implying a change from chance to choice. Knowing that truth does not necessarily conquer by itself, he was untiring in interpreting new ideas against the background of historical developments. "Professional health workers cannot . . . talk about advancing concepts and unexplored fields of public health in a vacuum."[2] He lived to see wide acceptance of some methods of organization he had long supported with skill and determination, and he was fortunate enough to observe marked growth of many and varied programs of medical care under the auspices of public and voluntary agencies. But much of the seed he planted came up rather slowly owing to the climate of the times.

The prerequisites for the establishment and operation of a strong medical care program are three: a service organization designed to attain high quality of medical care; a payment organization designed to raise, in a fair, equitable, and practical manner, the funds for the support of all necessary professional, hospital and auxiliary services; and an

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administrative organization assuring high standards, efficiency, and economy of service. Joseph Mountin fully apprehended the importance of each of these factors and their interdependence. In numerous publications he made not only highly useful contributions to their better understanding but valuable suggestions for introduction of suitable policies and administrative procedures.

ORGANIZATION OF SERVICE

The best that medicine, dentistry, nursing, and the related professions have to offer in the prevention and treatment of illness can be brought within the reach of all the people only if two requirements are met. Competent personnel and physical facilities meeting high standards must be available in sufficient number and reasonable geographic distribution, and all must be working together for the good of the community. Joseph Mountin frequently called attention to the fact that "perhaps one of the most serious obstacles in the way of adequate care for everyone is the inequitable distribution of professional personnel and hospital accommodations." [1b] Convinced that "general hospitals are destined to become increasingly important in the evolution of medical care and health service programs," Mountin, in cooperation with Elliott H. Pennell and Vane M. Hoge, devised "a plan for an integrated scheme of hospitals and related facilities to cover every section of the nation," [3] based on the principle of regional organization. The publication, released in 1945, was described as "a library product" not to be construed as "a forecast of what is to come."

One year later Congressional legislation laid the groundwork for such a policy, and by 1952 the development of hospital districts as well as the construction of more and better physical facilities in areas of need were well under way. His deep interest in the problem of coordinating community resources for personal health services led Mountin early to presentation of alternatives for the evolution of health centers in the wide sense of the term [4] and, later, to concrete proposals for achievement of a close physical and organizational association of health departments and hospitals. To this end he, together with Clifford H. Greve, prepared a map of health service areas in the hope it would serve as "a guide for future development of integrated and comprehensive health service areas." [5] In connection with his work on medical service areas he tried to forecast future requirements for physician's services and, in cooperation with Elliott H. Pennell and Anne G. Berger, presented estimates of "the number of physicians that might be utilized as health services are extended more uniformly throughout the Nation." [6]

ORGANIZATION OF PAYMENT

"No one can predict what the illness experience of any family, or of any of its members, will be even during the course of a day. Since treatment must be adapted both to the character of the illness and to the reactions of the patient, advance estimates on costs likewise are not within the range of calculation; hence budgeting for illness by the individual is not feasible." [1c] Mountin was aware of the human and financial problems presented by the unpredictability and variability of medical care costs to the individual. Moreover, he realized the fallacy of comparing family expenditures for medical care with those for commodities. "The head of the household can estimate in advance, with a high degree of accuracy, his expenditures for shoes, clothing, groceries, and recreation. . . . By substitution and denial, a family head may adjust expenditures for these commodities without seriously affecting the health or happiness of his household. But the family head is not in a position to meet his illness problems so easily." [1c] In

other words, the proverbial common man is free to choose between steak and hamburger, whiskey and Coca-Cola, or a hotel suite in Miami and a roadside cabin in Meddybemp, but he is not free to choose between high or low bills for the services of hospitals, physicians, dentists, and others.

Medical care is an undesired necessity, fundamentally different from goods needed and desired by everybody and from nonessential things widely purchased because they are pleasurable. The individual who has to carry the full burden of medical care costs when they occur finds neither comfort nor help in statistics proving the average family expenditures for medical care to represent a relatively small proportion of all consumer expenditures. Cognizant of this web of circumstances, Mountin vigorously supported the idea of prepayment for medical care "out of a pooled fund derived from taxation or insurance." [1d] Such a policy, Mountin believed, would go far toward reducing the cost of medical care for the individual. It would also serve to reverse the trend toward "concentration of professional and hospital resources in centers of population and wealth" and enable participating physicians "to take a larger part in preventive health measures than is possible when they are compensated for their work only through fees collected directly from persons served." [4b]

ADMINISTRATIVE ORGANIZATION

The administration of a medical care program must be democratic, simple, and inexpensive. The administrative structure of all agencies and the administrative procedures of each service unit must be such as to assure early diagnosis, early, prompt and thorough treatment, high standards of service, and continuity and consistency of care. The attainment of these principles requires clear definition of the powers and functions of the responsible agencies; professional direction and supervision of professional matters; participation of the people covered, the health professions, and the representatives of medical care facilities in policy-making and management; and coordination of the medical care administration with other governmental and voluntary agencies engaged in health and welfare activities.

Mountin frequently expounded each and all of these rules of sound administrative organization and used every opportunity to make them living facts in the administration of tax-supported health services. He was deeply concerned over "the present disorganized state of public medical service." [7a] Time and again he called attention to the multiplicity and diversity of agencies administering medical care facilities or specific programs. He was especially disturbed by the "increasing dispersion in distribution of health functions among the administrative agencies of state government" [8a] and, particularly, the segmentation of administration, diffusion of authority, and dissipation of function in the provision of general medical care for various population groups and the special programs for control of certain diseases, such as tuberculosis and psychiatric disorders.

He saw the impact of "divided responsibility and lack of uniformity" on "federal, state, and local relationships for both routine and special demands" [8b] and, therefore, wholeheartedly endorsed those who maintained "tax-supported functions that serve primarily health interests should be concentrated as far as possible in a single branch of government and be directed by a professional person of policy-making rank." [7b] Far from entertaining illusions about the feasibility of administrative consolidation he urged, as a useful alternative, development of "mechanisms for cooperation among all public agencies involved in health and medical service." [8c]

Any discussion of changes in adminis-

trative responsibility for health services financed out of tax funds inevitably leads to a crucial question. Which is the logical agency to assume leadership in building a better administrative structure and, possibly, to have authority for administration of all types of tax-supported physical facilities for medical care and all public programs providing personal services to the individual in health and sickness? In Mountin's mind there was no doubt about the answer. "It is in the public interest . . . that medical care functions be developed in public health agencies." [9a] "Instead of becoming overly engrossed in the minutiae of a restricted field, the health department might well broaden its interest and make its staff, resources, and facilities available for administering a wide variety of public programs. By so doing, its stature and usefulness in the community would be immeasurably enhanced to the ultimate public benefit and profit." [2b] "If a public organization or agency is not alert to changing needs, if it grows insensitive to the desires of the people, it becomes rigid and actually falls behind the time. It not only tends to lose popular support but fails to attract the kinds of professional personnel it needs to carry on its programs. . . . How many health programs have gone by default to other governmental agencies because the health department was not ready to modify or redirect its efforts?" [10a]

PREVENTION AND TREATMENT

Mountin did not confine his interest to technical matters and questions of methodology. He gave much thought to some of the concepts guiding contemporary health policy and, especially, the theory of separation of preventive and curative health services. "Prevention today has many connotations. Now it is expected that disability both temporary and permanent should be lessened by any device which society can command." [7e] "As medical science has advanced we have learned that the cure of a communicable disease in one individual may prevent its occurrence in others, and that early treatment of any illness tends to lessen the need for more extensive care later. Today scarcely any aspect of clinical medicine is without its preventive component. On this obvious truth there is little if any intellectual disagreement, but unfortunately it finds far too little expression in action programs. Attitudes as they exist in the United States serve to perpetuate the figment of separation between prevention and treatment." [9b] Such professions of his belief in the inseparability of so-called preventive and so-called curative health services rendered in the form of personal services did not win Mountin many new friends but, unquestionably, will be acclaimed by future generations.

A searching inquiry into the basic concepts governing the social organization of health service is, indeed, imperative because of the rapid growth of medical care programs in recent years and the certainty of further extension and improvement of such programs in the future. Is it wise public policy to foster continued development of two, more or less separate, sets of health programs providing for personal services, one designed for prevention of disease, if not promotion of optimum health, and another one for treatment of illness? Or should concerted efforts be made to create a unified service to the individual in health and sickness through development of comprehensive medical care programs? Mountin was confident the blending of preventive and curative service could be achieved through a complete health program. "In great measure . . . public health of the future will be comprehensive medical care," [9c] and effective operation of such a program involves, among other requirements, conclusion of "suitable working arrangements between health departments,

hospitals, private physicians, and others who actually perform various services." [10b]

THE FLAG OF FAITH

As the history of social movements shows, pressure for progress first results in expansion, rather than growth in depth, and later, with increase in quantitative gains, leads to more emphasis on quality. The development of the social organization of medical care has followed the same course. There is need for a bold attack on the problem of making comprehensive medical care of high quality available to all the people at a price all can afford. Further progress will be slow if all efforts are concentrated on development of mechanisms making the old wheels turn more smoothly. Nothing can be gained from construction of a harmony platform comfortable enough to permit waiting for the train of events to pass by. These were the convictions guiding Joseph Mountin in his crusade for the creation of adequate medical care programs and, thereby, the advancement of the frontiers of public health. Mountin fought under the flag of faith embroidered with the words: "Let the welfare of the people be the supreme law." He never wavered under the fire of those drawing together around the flag of fear—fear of losing privileges, fear of the new, fear of a change from chance to choice. Mountin fought under the flag of faith—faith in the common man and also the uncommon man, faith in the possibility of achieving social as well as political democracy. By taking such a stand he acted in conformity with George Washington's maxim: "Let us raise a standard to which the wise and honest can repair."

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Mountin kept asking, "How well suited is the orthodox program of the health department to the needs of the people. What role is the department willing to occupy in areas beyond its traditional interest? How well equipped are public health groups to carry such additional functions as they may be called upon to discharge?"

The Role of the Local Health Department*

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JOE Mountin's great contributions to local health administration in the United States were based on sound knowledge of health problems derived from a long and rich firsthand experience at all levels of government and certain personal qualities which characterized him. Those who knew Mountin well recognized his vision and his passion for facts. Never satisfied with the status quo he sought the reason for things, and kept asking what the people wanted done about their health. With forthrightness and skill in turning phrases he doggedly made his points, sometimes striking home to the point of drawing blood. Gathering a corps of loyal co-workers such as Evelyn Flook and Elliott Pennell, he developed a highly productive team. A practical health administrator, he recognized that during war and similar emergencies usual activities had to take secondary positions. Nevertheless, he was opportunist enough to convert many war-born activities into extremely useful peacetime services. A prime example is the Communicable Disease Center developed out of a malaria control program in World War II.

MOUNTIN HAD A BROAD DYNAMIC CONCEPT OF HEALTH

His contributions in public health administration stemmed from a broad, dynamic, progressive concept of "health." Restrictive definitions of health department functions were opposed strongly. He pointed out [1] that "wisely conceived and properly interpreted a definition can serve a very useful purpose. But if a definition merely serves to restrict health departments, that is, if it is used to shut them out of current problems and activities, it can also be stultifying . . . to tie public health to the concepts that answered our needs fifty years ago, or even a decade ago, can only hamstring our contribution to society in the future." Concepts of health must depend on differences in time, place, and problem. To understand health problems of the underdeveloped areas of the world it "would be necessary to go back . . . as much as a century in our own history . . . it is almost impossible . . . to arrive at a definition that will be enduring and universal. The concepts that were appropriate some years ago do not—nor can they be expected to—take cognizance of current health problems and responsibilities." Because Mountin's views of health were so dynamic, he not infrequently trod on the toes of those content to look backward rather than forward.

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MEETING ACTUAL HEALTH NEEDS OF THE PEOPLE

In a paper written with Mustard in 1929 Mountin said,[2] "No program can be considered either sound or satisfactory unless it is based on the health needs of the area." He was struck by the inequality of opportunities for health among different segments of the population found in his early Virginia work [3] and in well conceived administrative studies made jointly with the National Health Survey.[4] So apparent to him were the changing health needs of the nation that he not infrequently became impatient with those who failed to see them.[5] "The outstanding factors which will determine the direction of public health activities for the next decades are . . . the general aging of the population and the increase in chronic diseases." These new needs call for new administrative programs. He kept asking, "How well suited is the orthodox program of health departments to the needs of the people? What role is the department willing to occupy in areas beyond its traditional interest? How well equipped are public health groups to carry such additional functions as they may be called upon to discharge?"

PREVENTIVE AND CURATIVE MEDICINE CANNOT BE SEPARATED

To Mountin it was plain that [6] "preventive and curative measures are closely related and that each scientific advance necessitates a larger amount of personal service in administrative practice." He was very impatient with public health officers who sidestepped responsibility for undertaking [7, 8] community medical care programs and frequently pointed out ways in which they could prepare themselves for this type of activity.

LOCAL HEALTH UNITS

The history and development of local health units was well known to him, and many years ago he stated certain principles which should govern the organization of such units:[9, 6, 10] (1) health services should be localized; (2) the area served "should be a political and a taxing unit with definite legal status;" (3) the basic health department should be a part of the general governmental structure; (4) the population "should be of sufficient size to make possible efficient administration and an equitable distribution of costs;" (5) the health organization should have "sufficient funds to provide trained personnel capable of rendering an inclusive type of service and one of sufficient intensity to accomplish definite and tangible results;" (6) all public health personnel working in the area should be an integral part or a coordinated part of one organization under one directing head who should be an official health officer; (7) the state should set minimum standards for localities.

The governmental health department was of paramount importance in Mountin's eyes.[11] "Obviously, the first prerequisite to improvement of public health in any locality is a properly constituted health department." which should [12] "act as a general staff in coordinating all the community's health services." He recently said:[1] "there is a greater need than ever for a community organization to spearhead the work and to provide the technical and administrative guidance. That organization should be the focal point of the community's health activity. It should contain the social perspective and the wealth of competency to be able to perceive the need, and it should have the ability and the courage to take whatever action is necessary.

"The people expect the health department to be that organization. They look to it as the community agency which will help find the answers to their pressing health problems. It is to this trust that public health must be truly dedicated."

He did not conceive of the health department as doing the total health job, but thought of its range of activity as involving [5] "investigation, prevention, case-finding and education, the provision of diagnostic auxiliary aids to the clinician and the administration of various public services and facilities having to do with care or rehabilitation."

Though the health department should definitely not engage directly in all kinds of health activities, it should [13] find ways to participate in each type of health activity, such as: (1) advice and consultation with the agency responsible for a program; (2) assignment of qualified personnel; (3) perform certain selected services by contract or otherwise; (4) study the problem and make recommendations; (5) promote a planning body on which the health department would be represented. He was convinced that [14] "many local health departments have too narrow a conception of their functions and duties. They routinely perform their old line tasks such as inspection, abatement of nuisances, enforcement of quarantine and other activities handed down from the early days of public health organization." He realized that "no public agency can expect public support unless (1) it has convinced the community that it is doing a really important and worthwhile job, and unless (2) it commands respect for the way it is doing it." During World War II he urged health departments to face new challenges, saying [15] "if the basic system we have developed slowly over a period of years proves adequate to the demands of the emergency it will be retained as the foundation upon which the Nation's future health services will be provided. If it fails, a reorganization, sweeping in character, appears to be inevitable."

The deplorable quarters in which many health departments attempted to function were anathema to Mountin, and he vividly described them noting [14] that "the imagination can scarcely conceive of conditions worse than those found in the headquarters of the very agencies which ought to set an example of civic cleanliness and decency." Frequently he pointed out to health groups that Hill-Burton funds are available for health center construction.

Stressing again the importance of flexibility he noted [1] that "if a public organization or agency is not alert to changing needs, if it grows insensitive to the desires of the people, it becomes rigid and actually falls behind the times. It not only loses popular support, but fails to attract the kinds of professional personnel it needs to carry on its programs. Moreover, a narrow outlook constitutes an open invitation for new programs to spring up under other auspices which may be less well equipped in terms of professional competence and technical experience."

A SINGLE RESPONSIBLE AGENCY

"A single responsible agency is a fundamental requisite to effective administration at all levels" [16] of government. This is part of an official statement adopted by the Governing Council of the APHA in October, 1944, based on a report of the Subcommittee on Medical Care of which Mountin was then chairman. Over many years he has emphasized the importance of unified administrative responsibility for health activities. Nothing pointed up this principle more than his studies on the distribution of health services in state governments.[17, 18] These analyses revealed a range of 10–32 agencies concerned with health services in the various states. State health departments were directly responsible for only about one-fourth of the expenditures for health services at the state level. In his 1950 analysis Mountin [13] noted that "when assigning responsibility for new activities significant to health, states are failing to take full advantage of the broad author-

ity, the technical competence, and the basic interest in total health promotion centered in the health department, which should be the main health agency."

The inefficiency of multiple administrative agencies caused the remark that [19] "there must be considerable loss in effectiveness of program and in economy of administration." Mountin contended [6] that "The basic health services should be performed by the official health agency since in this way only can they be given the necessary legal backing and stable basis of financial support" and noted [20] that "Public health endeavor has somehow escaped the ordering that has been a part of the evolutionary process of most public activities . . . health is not given its rightful position among other problems of public importance, and its treatment is left largely to whatever chance may develop."

Mountin emphasized that [21] "the health department contains the biological, and to a certain extent, the social competence which, together with its legal authority and administrative experience, enables it to launch and continue comprehensive programs of community health."

NEED FOR UNDERSTANDING THE PRACTICING PHYSICIAN

Mountin appreciated the importance of understanding the private practitioner's problems and finding methods of working with him. In 1930 he said: [22] "The physician in private practice sees in personal hygiene a legitimate and profitable field for expansion of his activities. The public health agencies become restless and dissatisfied because knowledge is not being applied to the extent it should be. This condition of affairs is seized upon by individuals in both camps who enjoy or profit by controversy."

With increasing extension of public health activities into the field of personal health services, particularly in chronic disease control, he realized the importance of not going too fast and of carefully working out professional relationships. In the chronic disease program he pointed out that [23] "What is involved here is a whole new set of long-term relationships with physicians, hospitals, and other community resources which must be carefully thought out and developed."

PROGRAM PLANNING

To Mountin program planning was [12] "The mobilization of all resources and facilities to the best possible effect so that problems are solved." Any planning not directly concerned with solving problems did not appeal to him. As a general basis for planning he pointed out [11] that "the present concern of all persons interested in public health should be: (1) to hold the gains already made in raising the general health level of the country; (2) to increase these gains by extending the traditional health services now in operation to all segments of the population; (3) to broaden the definition of public health service to include essential elements of general medical care; (4) to exploit the possibilities in research."

ADMINISTRATIVE RESEARCH

In one of his earlier papers [2] he noted the "need for accumulation of scientific data substantiating assumption that the prosecution of a given activity will be followed by a specific result." Administrative research was to him of importance comparable to laboratory research. His questioning mind was always eager to "look at the record." He and his collaborators did this in many fields of administrative problems, including careful studies of hospital and physician resources, and health insurance plans in various foreign countries, as well as in the more widely accepted problems of health departments.

Beginning in 1925 he became a member of the APHA Committee on Administrative Practice and served as chairman of the Subcommittee on Current Practices of Health Departments, and of the Subcommittee on Medical Care. He was a valuable member of the important Committee on Local Health Units under the chairmanship of Haven Emerson.

PERSONNEL PRACTICES

Quite early in his career he became concerned with training problems.[24, 25] He believed that[6] "all technical positions should be filled by persons meeting definite professional requirements" and that "the services comprising a modern public health program cannot be discharged satisfactorily by a part-time physician or lay health officer working alone." He recognized the importance of making public health work attractive and pointed out that[26] "relying on the 'call for service,' and maintaining a lofty indifference to such mundane matters as compensation, promotion, professional advancement, security and eventual retirement can only lead up a blind alley of narrowing usefulness." He studied problems of auxiliary workers,[26] of health officer tenure,[27] analyzed the state training programs developed under grants-in-aid,[28] and was a strong supporter of the merit system[29] and of the Professional Examination Service developed by the American Public Health Association with his help and that of the Children's Bureau.

RECORDS

To Mountin records formed the basis for administrative action as well as providing material for research. He was constantly concerned with[30] devices for reducing administrative records to the point where they were serving the purpose intended rather than cluttering up the staff with useless paper work. His development of[31] the program audit as a simplified reporting device to deal with the problems of grant-in-aid administration was a most important administrative contribution.

SERVICE AREAS

If health departments were to do their job properly, Mountin thought they would need to work very closely with hospitals and other agencies providing medical care. To make this possible the geographic areas served by health departments needed to be coordinated with hospital service areas. He suggested[21] that "professional public health workers should now consider the development of local health units in a nation-wide pattern integrated with the planning for hospitals and health center buildings . . . any system which makes hospital and health departments mutually exclusive is uneconomical and certain to become outmoded." "Through its link with community hospital facilities, the focal point of medical services for the locality, the local health unit will have the opportunity to perform the function of coordinator of community health and medical services."[32]

GRANTS-IN-AID

Perhaps no one in the country was more familiar with the problem of health grants-in-aid than was Mountin. He documented the purposes of subsidies and[33-35] the history of health grants-in-aid in the United States. In describing the emergency health and sanitation activities of the Public Health Service during World War II[36] he pointed out that "the Service had learned, through managing these grants-in-aid programs, that it was sound policy to allow the states and their political sub-divisions to do most of the actual job of effectuating at local levels health programs of national scope; it had come to the conclusion that the role of the Federal Government in such programs should be limited, in general, to providing friendly counsel and to supplementing local resources,

when necessary, with federal funds, personnel and equipment. These principles were scrupulously adhered to by the Service in carrying out its health and sanitation program."

Joe Mountin's courage, vision, honesty, energy, and forthrightness aroused the admiration of all who knew him, even though some might disagree with certain of his ideas. We shall always be grateful for the opportunity of having known him as a person, as well as for his monumental contributions to public health practice.

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Greatly needed is this reminder that we are never free of the menace of smallpox. It is ironical that, once again, hospital personnel were involved in this outbreak. Details of the successful use of a new vaccine will be of interest to all.

Outbreak of Smallpox in the Lower Rio Grande Valley of Texas in 1949

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ON or about February 20, 1949, Dr. X, in Hidalgo County, Texas, was called to the home of H.B., a worker in a citrus-juicing plant. H.B. had been suffering from chills and fever and was covered with a macular rash. Dr. X suspected that H.B. had typhus fever. This was the only contact Dr. X had with H.B. On February 29, Dr. X became ill with chills and fever. Meanwhile W.P., an oil-field worker in adjoining Starr County, had been admitted to a local hospital with a febrile illness, which was not immediately identified. On March 5, Mrs. H.B. became ill, followed on March 7 by B.B., a ten-year-old son. On March 9, J.R., a county commissioner, became ill. Most of these illnesses had become known to the Hidalgo County Health Department by the time of the death of Mrs. H.B. on March 12. This fatality evidently was from smallpox and suggested a probable diagnosis of smallpox on other cases. Suspected cases were isolated and known contacts were vaccinated with C.A.M. vaccine supplied by the State Health Department, as later described. Two additional cases, M.M. and C.G., were found, as shown in Table 1.

On March 15, pus was obtained aseptically from H.B., W.P., Dr. X, B.B., and J.R., and taken to the laboratory on wet ice. Inocula without an antibiotic were dropped on the chorioallantoic membranes of 11–13 day old embryonated eggs, several of which developed discrete plaques or "pocks" demonstrably free of bacteria. With infected membranes the small glistening points of proliferation were evident 36 hours after inoculation, as shown in Table 2.

Passage of the infections to other embryonated eggs was readily accomplished. The infective membranes were harmless for mice inoculated by the intracerebral and other routes. Acidophilic-stained masses characteristic of Guarnieri bodies found in smallpox were demonstrated in the infected membranes. These findings were consistent with positive tests for smallpox.[1, 2] Subsequently a similar agent was recovered from pus from M.M. and glycerinated crusts treated with penicillin or penicillin and streptomycin from H.B., Dr. X, B.B., and C.G. A post-mortem specimen from Mrs. H.B. was unsatisfactory. The virus was not often found in the badly desiccated crusts collected late in the illness.

Since H.B. and W.P. became ill during the same week, a common source of infection seemed probable. This source

TABLE 1

Data on Eight Cases of Smallpox

Case	Date of Onset	Age	Sex	Race	Probable Source of Infection	Outcome of Illness
H. B.	2–17–49	51	M	A *	Unknown	Recovered
W. P.	2–22–49	37	M	A	"	"
Dr. X	2–29–49	34	M	A	H. B.	"
Mrs. H. B.	3– 5–49	43	F	A	W. P. or H. B.	Expired
B. B.	3– 7–49	10	M	A	H. B.	Recovered
J. R.	3– 9–49	42	M	A	W. P.	"
M. M.	3–15–49	40	M	L †	Unknown	"
C. G.	3–25–49	17	M	L	"	"

* Anglo-American.
† Latin-American.

TABLE 2

Results with Chorioallantoic Membrane Infection Test for Smallpox

Case	Date of Specimen Collection	Date of C.A. Membrane Inoculation	Number of "Pocks" Observed in 36 Hours	Result of Test
H. B.	3–15–49	3–17–49	numerous	+
	3–23–49	4– 2–49	2–10	+
W. P.	3–15–49	3–21–49	numerous	+
Dr. X	3–15–49	3–16–49	"	+
	3–30–49	4– 2–49	2–10	+
	4– 7–49	4–14–49	none	negative
Mrs. H. B.	3–17–49	unsatisfactory		
B. B.	3–15–49	3–21–49	numerous	+
	3–30–49	4– 2–49	0–6	+
	4– 7–49	4–14–49	none	negative
J. R.	3–15–49	3–25–49 *	2–6	+
	4–11–49	4–18–49	none	negative
M. M.	3–24–49	3–25–49 *	1–8	+
	4–11–49	4–18–49	none	negative
C. G.	4–11–49	4–18–49	0–10	+
	5– 1–49	5– 6–49	none	negative

* Inoculum was diluted considerably to avoid bacterial growth.

was unknown. Mrs. H.B.'s illness occurred shortly after her dismissal from the hospital where she recently had undergone surgery. H.B. had visited his wife at the hospital on February 17, 18, and 19. Since Mrs. H.B. was not dismissed from the hospital until March 1, she probably was infected by W.P. or H.B. in the hospital. H.B. evidently infected his physician and his son. In his delirium, W.P. twice "escaped" from the hospital and in his wanderings about the streets, a mass of pus and crusts, he perhaps infected others. W.P. possibly infected J.R. in the hospital where he frequently visited a friend shortly after W.P. was admitted. The source of M.M.'s infection was not determined. A few pustules were found on C.G. when he was jailed for theft of clothing. Stolen clothing possibly was the source of his infection.

This account obviously suggests that some cases of smallpox were missed.

This was all the more likely because of the prevalence of chickenpox at the time, on both sides of the border. There had been some smallpox in the interior of Mexico, but none apparently had been recognized recently near the lower Rio Grande border. In recent years [3] the reported incidence of smallpox in Mexico has declined to remarkably low levels.

THE VACCINATION CAMPAIGN

The Hidalgo County Health Department initiated a mass vaccination campaign at the end of the second week in March. Several vaccination stations were established at schools and other strategic locations both in Hidalgo and Starr Counties. The Hidalgo County Health Department at Edinburg served both as a principal vaccination station and vaccine distribution center. A vigorous vaccination campaign also was pushed by the Cameron County Health Department. At most of the principal vaccination stations the names of persons vaccinated were noted, while elsewhere the number of persons vaccinated was recorded. The services of volunteer workers were utilized in conducting the emergency vaccination program.

Chorioallantoic membrane culture smallpox vaccine [4, 5] rather than calf-lymph was utilized. The C.A.M. vaccine was prepared from membranes of embryonated eggs infected with vaccine virus. The infective membrane tissue was finely emulsified and prepared as a 20 per cent tissue suspension using sterile inactivated beef serum as a diluent. The vaccine was tested for safety and potency and dispensed in glass capillary points in the usual manner. In the valley emergency the local health department supplied all local physicians with this vaccine. The current supply of 50,000 points of vaccine was used in a few days. Reserve stock vaccine was quickly filled into the final capillary containers and made ready for distribution. It was estimated that even this reserve stock would not fully meet the sharp increase in use of the vaccine both in the valley area and in other parts of the state. Local hatcheries were contacted and 3,000 embryonated eggs (age 11 days) were obtained. By thus speeding up the process of manufacture it was possible to have a large supply of vaccine on hand within one week after inoculation of the membranes. A shortage of glass capillary points threatened to become a "bottleneck" in distribution, but fortunately a supply was obtained before it became necessary to dispense the vaccine in bulk state.

At no time was the Hidalgo County Health Department without C.A.M. vaccine, but because of the reduced supply at some of the stations it was necessary to do multiple vaccinations from capillary points containing sufficient vaccine. Approximately 106,000 persons were vaccinated in Hidalgo County, 103,000 in Cameron County, and 30,000 in Starr County. Much of the vaccinating was done in a five-day period between March 13 and 18. Relatively few points of commercial calf-lymph were used, and more than 99 per cent of the vaccinating was done with C.A.M. vaccine.

SEQUELAE

It is known that encephalitis occasionally follows vaccination. A case of encephalitis in a young adult occurred in Hidalgo County early in August. This case had been vaccinated against smallpox in March but this apparently was not significant. A case of encephalitis occurred in Cameron County in November, but this person had not been vaccinated in several years. A case of generalized vaccinia was observed. There were no fatalities attributed to vaccination.

VACCINATION AND IMMUNITY

Numerous vaccinated persons who expected immune reactions had good

TABLE 3

Vaccination Data on Intimate Family Contacts of Cases of Smallpox

Intimate Family Contacts	*Primary Vaccination with*		*Year*	*Result*		*Revaccination with C. A. M. Vaccine*	*Result*	
	*C. L.**	*C. A. M.†*						
G. B.		Yes	1946	Primary "Take"		Yes	Immune Reaction	
D. B.		"	1944	"	"	"	Vaccinoid Reaction	
Mrs. J. R.	Yes		about 1922	"	"	"	"	"
A. R.		Yes	1944	"	"	"	"	"
C. R.		"	1945	"	"	"	"	"
O. R.		"	3-12-49	"	"			
Mrs. X.	Yes		about 1929	"	"	"	"	"
Mrs. W. P.	Yes		about 1925	"	"	"	"	"

* Commercial calf-lymph smallpox vaccine.
† Chorioallantoic membrane vaccine prepared by the Texas State Health Department.

"takes." While most of the school children in Hidalgo and Cameron Counties had been vaccinated before the outbreak of smallpox, most preschool children and many adults had not been vaccinated. There were many who never had been vaccinated and others who had not been vaccinated in recent years. Of the 8 recognized cases of smallpox, only C.G. had been vaccinated. C.G. had been vaccinated at least 12 years earlier, yet his illness was relatively mild. Because of absence as a result of an accident and illness, B.B. had twice missed vaccination at school. His two older brothers had been vaccinated with C.A.M. vaccine, and despite heavy exposure to smallpox they escaped infection. They were revaccinated before their mother's death. Mrs. X, Mrs. W.P., and Mrs. J.R. had been vaccinated several years earlier. They were revaccinated. The three J.R. children were vaccinated or revaccinated, as shown in Table 3. M.M. was foreman of a labor crew and while he conscientiously saw that all his men were vaccinated he refused vaccination himself because he was sure he "had smallpox several years ago." His illness was not severe and perhaps it was a second attack, as M.M. insisted. It appeared remarkable that many other cases did not result from the contacts with known and unknown cases, particularly in view of the delay in starting the mass vaccination campaign.

DISCUSSION

An outbreak of 8 cases of smallpox was described but it was evident that a few cases were missed. The history of the outbreak showed several similarities to the recent outbreaks in New York City [6] and Glasgow, Scotland.[7] In all three outbreaks hospital-acquired infections occurred largely because of early failures to recognize smallpox. In the Texas and the Glasgow outbreaks medical or nursing personnel became infected.

In each of these outbreaks infection of the chorioallantoic membrane of the embryonated egg was utilized as a laboratory aid in diagnosis. The diagnosis of 7 of the 8 cases described was confirmed by laboratory test. It was gratifying that the test appeared to be sensitive, specific and readily applicable with a minimal delay, supporting earlier observations on the value of the test.[1, 2] In the performance of this test, as in much laboratory work, there is dependence upon submission of satisfactory specimens. Negative tests were obtained frequently with badly desiccated crusts obtained late in the illness. The evidence should be considered with respect to clinical, epidemiological, and laboratory data.

The outbreak of smallpox described following soon after a similar outbreak in New York City emphasized the need for keeping people immunized against

smallpox. Although smallpox vaccination is universally accepted as a protective measure against smallpox, vaccination all too often is neglected. Only one of the 8 cases had been vaccinated. In the heavily populated lower Rio Grande Valley many never had been vaccinated and fewer yet had been vaccinated in recent years. In combating this outbreak, vaccine cultivated in the chorioallantoic membrane of the embryonated egg rather than calf-lymph primarily was utilized. Calf-lymph points comprised less than 1 per cent of the total points used. C.A.M. vaccine has been prepared by the State Health Department and utilized in Texas for several years.[5] The results obtained in combating the outbreak described appeared to support the impression that C.A.M. vaccine [4, 5] was an effective immunizing agent. It was also gratifying that, in an emergency, the C.A.M. vaccine could be processed and distributed with a minimal delay.

SUMMARY AND CONCLUSIONS

An outbreak of 8 cases of smallpox with one fatality which occurred in the lower Rio Grande Valley of Texas early in 1949 was described. The diagnosis of 7 cases was confirmed by cultivation of the virus in the chorioallantoic membrane of the embryonated egg.

The vaccine primarily utilized in combating the outbreak was prepared from the infected chorioallantoic membrane of the embryonated egg. It appeared that the C.A.M. vaccine was an effective immunizing product.

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"Academic training is relatively easy: emotional development is relatively difficult."—Brock Chisholm, M.D., director general, World Health Organization, speaking at the APHA Annual Banquet, in Cleveland, Ohio, October 23, 1952.

Because brucellosis becomes increasingly a concern of public health practice, this discussion of laboratory method for the isolation of the Brucella is a matter of interest to all who have direction of public health organization.

Routine Methods for Cultivation and Isolation of *Brucella* in a Public Health Laboratory

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MANY different routines have been established for the culturing of *Brucella*. In public health laboratories, an important factor is the adaptability of the method to many different conditions, such as, delay in culturing, transportation through mail, etc. It should be of interest, then, to give the results of 13 years of *Brucella* culturing as practiced in the State Board of Health Laboratories in Alabama.

Some laboratories attempt routinely the isolation of *Brucella* on all specimens received, regardless of the agglutination titer. In Alabama only those bloods showing a 4+ agglutination in a titer of 1:40 or above are cultured. Prior to 1951, only those bloods showing a 4+ agglutination in a titer of 1:80 or above were cultured.

MATERIALS AND METHODS

The *Brucella* antigen used is prepared from a *B. abortus* strain No. 2308. The antigen is harvested in 0.5 per cent phenolyzed physiological saline and after sterility is ascertained, it is washed and adjusted to a density equivalent to MacFarland standard No. 2. In the routine examination of all blood specimens for agglutinins, serial dilutions of the patient's serum are set up against the *Brucella* antigen and the tests are incubated at 52° C. for 18–20 hours.

The blood culture medium used for enrichment is tryptose broth, prepared as follows:

Bacto-tryptose	20 gm.
Dextrose	1 gm.
Sodium chloride	5 gm.
Sodium citrate	10 gm.
Distilled water	1,000 ml.

The mixture is heated in flowing steam for 10 minutes to dissolve the ingredients. One-half ml. of a 1 per cent solution of p-aminobenzoic acid is added. The medium is then adjusted to a pH of 7.2 and filtered through coarse filter paper. Twenty ml. of medium are transferred to 50 ml. bottles, a rubber stopper is placed loosely in the mouth of each bottle over which a small square of gauze is placed and secured with a rubber band. The bottles are then autoclaved at 15 pounds pressure for 20 minutes, and upon removal from the autoclave the stoppers are eased into the bottles and the gauze removed.

Crystal-violet tryptose broth is prepared as described above with the addition of 1.4 ml. per liter of a 0.1 per cent aqueous crystal violet solution.

The solid medium used for isolation is

Bacto-tryptose agar containing 1.4 ml. per liter of a 0.1 per cent aqueous crystal violet solution.

The clot is cultured by passing it through a sterile 5 ml. syringe (without needle) into a bottle of crystal-violet tryptose broth. The rubber stopper is punctured with a sterile needle and 10 per cent of the air removed from the bottle. With the same needle and syringe, the same amount of CO_2 is introduced into the culture, thus creating an atmosphere of approximately 10 per cent CO_2. These cultures are incubated for at least four days at 37° C. before streaking to crystal-violet tryptose agar plates.

When a positive agglutination test is reported to the physician, a form letter requesting a citrated culture is enclosed. At the same time a culture bottle to which 10 per cent CO_2 has been added and directions for collecting the specimen are forwarded to the doctor. Blood in the amount of 3–5 ml. is collected under aseptic conditions and injected through the sterilized stopper into the culture bottle which is then mailed to the laboratory. Upon arrival at the laboratory, the blood culture is incubated for at least four days at 37° C. before streaking. Thus, under ordinary conditions, a clot cultured in crystal-violet tryptose broth and later a citrated specimen cultured in plain tryptose CO_2 broth are run on all suspected cases of brucellosis.

All cultures, both clot and citrated, are plated once each week until three examinations have been made. Two-tenths ml. of the thoroughly mixed culture is removed from the culture bottle with a sterile 1 ml. syringe and streaked on crystal-violet tryptose agar. When all plates have been planted, they are inverted and placed in glass jars. Ten per cent of the air in each jar is displaced by adding CO_2 in the amount of 10 per cent of the volume of the jar. For a time anhydrous calcium chloride was placed in the jar to absorb excess moisture. This was discontinued when it became apparent that sterile filter paper discs placed between every plate accomplished the same purpose. Whatman filter paper, size 40, is used, although undoubtedly cheaper filter paper would work as well. The filter paper seems to help cut down contamination caused by extraneous material dropping into the inverted plates.

The transfers are incubated at 37° C. under 10 per cent CO_2 for a week and then examined for evidence of growth. If growth is obtained, a Gram stain is made and the staining reaction and morphology noted. If the culture is found to be mixed, an emulsion is made in infusion broth and a plate of tryptose agar is streaked and incubated in the same manner as the plate from which it was inoculated. When purity of the culture is assured, colonies are picked to triple sugar iron agar slants by stabbing and streaking. The suspected organism is subsequently tested for agglutinability against known anti-*Brucella* serum and a physiological saline control is set up to check for spontaneous agglutination. The necessity of a CO_2 atmosphere for growth is checked by streaking a tryptose plate and incubating under ordinary atmospheric conditions. Cultures identified as *Brucella* are sent to Dr. I. F. Huddleson for species typing.

RESULTS AND DISCUSSION

The results of culturing over a 13-year period are presented in Table 1. Out of 2,763 specimens giving an agglutination titer of 4+ in 1:80 or above dilutions, 400 isolations were made. In 1951 the laboratory began culturing all specimens giving a 4+ reaction in a 1:40 dilution. Two isolations were made at this dilution for a total of 402 isolations and a percentage total of 14.0. In the first week of subculture, 325, or 80.9 per cent, were isolated; 54 the second week; 19 the third week, and 4 the fourth

TABLE 1

Brucella Isolated in Alabama (1939–1951)

Year	Total Cultures	Total Positive	Percentage Isolated	Suis		Abortus		Unidentified	
				M	F	M	F	M	F
1939	125	11	9	8	2			1	0
1940	176	24	13	16	1	3	4		
1941	145	15	10.3	12	2	0	1		
1942	157	22	14.0	16	3	1	2		
1943	194	21	10.8	5	5	10	0	1	
1944	257	38	14.8	14	3	16	5		
1945	304	41	13.5	15	7	14	5		
1946	308	53	17.2	25	3	22	3		
1947	289	59	20.4	15	4	28	12		
1948	292	36	12.3	14	3	16	2	1	
1949	229	38	16.6	16	6	11	3		
1950	135	24	17.03	18	2	4	0		
1951	152	20	13.2	7	3	8	2		
Total	2,763	402	14	183	44	133	39	3	

TABLE 2

Days Between Original and Successive Isolations of Brucella on Six Patients

Patient	Strain	Days after First Isolation		
		Second Isolation	Third Isolation	Fourth Isolation
1	*suis*	311	—	—
2	*abortus*	118	131	251
3	*abortus*	30	237	244
4	*abortus*	1	38	152
5	*abortus*	30	43	70
6	*suis*	32	32	52

week. Of the isolations successfully completed, 84 were duplicates varying in frequency from one month to 10 months and 11 days. Isolations were accomplished 4 successive times on one individual varying from 3 months and 28 days to 8 months and 11 days. On 4 other patients isolations were successful 4 times each, varying from one day to 8 months and 4 days. See Table 2.

Reported discrepancies in agglutination titers due to variations in sensitivity of antigens and methods of incubation,[1-4] prompted this laboratory to check its *Brucella* antigen against antigens prepared by the U. S. Bureau of Animal Industry, the Communicable Disease Center of the Public Health Service, and the Connecticut Public Health Laboratories. Sera with varying antibody content were set up by the test tube method in serial dilutions against the above antigens with the exception of the Connecticut antigen which was tested by the slide method. The antigens checked by the test tube method were set up in duplicate, one set incubated at 52° C. for 18–20 hours and one set incubated at 37° C. for 48 hours. In general, both tube and slide antigens tested compared favorably.

From 190 patients both clot and citrated cultures were obtained. The citrated cultures yielded 141 isolations while the clot cultures yielded only 123 isolations.

The *B. melitensis* strain has not been found in Alabama and *B. suis* has been isolated more frequently than *B. abortus*. The ratio of males to females infected with *B. suis* was 4–1, and with

B. abortus 3.7–1. The percentage incidence of *Brucella* isolations in males was 79.3 and in females 20.7.

Table 1 shows that the number of recoveries of *B. abortus* strains continued to rise up to 1947 and decreased after that date. This decrease may possibly be attributed to more widespread vaccination of cattle and more general use of pasteurized milk.

In addition to the 402 *Brucella* isolations, 7 *S. typhi* cultures were recovered. *Brucella* titers of 1:80 and 1:320 were obtained from 2 of the specimens which yielded *S. typhi*.

It has been suggested that the use of crystal violet may inhibit certain strains of *B. suis*.[5] For a period of one year both plain tryptose and crystal-violet tryptose broth and plates were used on each specimen, and out of 28 isolations of which 13 were *suis*, only one strain of *suis* failed to grow in crystal-violet tryptose broth and on the crystal-violet tryptose agar. On the other hand, 3 strains of *B. suis*, as well as 2 strains of *B. abortus*, were lost, due to contamination on media without the dye. No *B. abortus* strains were suppressed by the crystal violet.

The tendency to obtain higher *B. suis* than *B. abortus* titers is evident in Table 3. Branch laboratories have not run titers above 1:320 and these represent the 1:320+ * titers as shown in Table 3. Clots in such cases have been forwarded to the Central Laboratory for culture.

In Chart 1 is shown the distribution of *Brucella* isolations throughout the the state. Of these isolations, 14 were received from Florida and 2 from Georgia. It will be noted from the map that *B. abortus* infections are in a large measure found in two counties, Montgomery and Mobile, where large numbers of dairy cattle are found, while in the southern part of the state, where swine are raised, *B. suis* is predominant.

TABLE 3

Agglutination Titer and Type of Brucella Isolations

Agglutination Titer	*Abortus*	*Suis*	*Not Typed*
1:40	2	—	None
1:80	3	9	None
1:160	14	9	None
1:320	23	20	1
1:320+ *	37 *	35 *	None
1:640	11	15	1
1:1280	24	28	None
1:2560	25	20	None
1:5120	7	28	None
1:10,240	3	20	None
1:20,480	—	5	None
1:40,960	—	2	None

Table 4 gives the occupational data on the patients from whom this information could be obtained.

At the present time, a survey of the literature substantiates our conviction that the culture of selected specimens for *Brucella* is justified.[2, 4, 6, 7] It is felt, however, that the successful routine culturing of clots is problematical. Nevertheless, some laboratories have been highly successful in isolating *Brucella* from specimens which showed very low agglutination titers or no titers at all.[8] Apparently local conditions play an important part in the successful isolation of *Brucella*.

SUMMARY

A *Brucella* culture technic which yielded 402 isolations from 2,763 selected blood specimens

TABLE 4

Relation of Occupation to Incidence of Brucella Infections

56 Farmers	4 Bus drivers	2 Shipyard workers
19 Packing house workers	3 Business	2 Painters
15 Dairymen	2 Doctors	1 Truck driver
15 Housewives	2 Cooks	1 Salesman
13 Construction	2 Vet. students	1 Transfer man
8 Students	2 Unemployed	1 Radiator repairman
5 Children	2 Midwives	1 Secretary

CHART 1

having a *Brucella* titer of 1:40 or above has been described.

On 5 patients, 4 successive isolations were made varying from one day to 8 months and 11 days.

B. melitensis has not been isolated in Alabama and *B. suis* has been isolated more frequently than *B. abortus*.

The percentage incidence among males is 79.3 as compared to 20.7 among females. Contact with infected animals seems to be the main source of infection.

B. abortus infections, in a large measure, are found in the central and northern part of the state which is a dairying section whereas in the southern part of the state, where swine are raised, *B. suis* predominates.

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Jefferson's Industrial Program

An expanded teaching and research program in industrial medicine has been developed by Jefferson Medical College of Philadelphia. The Division of Industrial Medicine, which is in the Department of Preventive Medicine, has integrated part of its undergraduate teaching program with the teaching of medicine. Students and Fellows have an opportunity to work in the new modern research laboratory being completed in the medical school building.

Hospitals, industry, insurance companies, and other concerns make use of the division's services. Special attention is given to patients with occupational diseases at Jefferson Hospital and its affiliated hospitals.

Heinrich Brieger, M.D., is professor of industrial medicine and director of the Division and consultant to Jefferson Hospital. F. B. Lanahan, M.D., medical director of the Electric Storage Battery Company has been appointed associate professor in charge of the field trips.

Tuberculosis control has attained to that stage of completion in which each individual case takes on a heightened status. So any laboratory test that speeds treatment assumes a new importance. Reported here is confirmation of the usefulness of a rapid virulence test for the offending bacillus.

A Study of the Neutral Red Reaction for Determining the Virulence of Mycobacteria*

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THE determination of bacterial virulence is of particular importance in the laboratory diagnosis of tuberculosis. Current practice consists of inoculating a suitable medium with suspect material and, if acid-fast forms develop, guinea pig inoculation is used to establish their pathogenicity. These procedures may require six weeks or even longer for completion. Because of this, the description by Dubos and Middlebrook in 1948 [1] of a rapid *in vitro* method of determining virulence of mycobacteria aroused considerable interest. This test consists of an alkaline buffered addition of aqueous neutral red to a suspension of methanol washed mycobacteria and observing the presence or absence of staining of the microorganisms. Virulent strains bind the dye and are stained pink to red; avirulent strains remain colorless.

Several workers have studied this reaction and have reported excellent agreement between the neutral red reaction of a strain and its animal pathogenicity. Hauduroy and Posternak,[2, 3] for example, found that 67 virulent strains gave positive neutral red reactions, whereas 67 avirulent strains were uniformly negative. On the other hand, Richmond and Cummings [4] in a study of human, bovine, avian and saprophytic mycobacteria encountered one strain from vegetable sources which was neutral red-positive but avirulent for the guinea pig.

For the past two years we have conducted a study of the neutral red test in our tuberculosis diagnostic sections. The virulence of all acid-fast organisms isolated from human clinical material was tested by both the dye method and by guinea pig inoculation. In addition a small number of stock strains of pathogenic and nonpathogenic mycobacteria were examined in this manner.

EXPERIMENTAL METHODS

Culture and Animal Inoculation—The neutral red test was run on cultured strains prior to animal inoculation and again on cultures reisolated from infected animal tissues. The acid-fast bacilli were isolated on Lowenstein's medium [5] and then subcultured to Du-

* Presented before the Laboratory Section of the American Public Health Association at the Eightieth Annual Meeting in Cleveland, Ohio, October 24, 1952.

bos's Tween-albumin medium[6] for preparation of animal inocula. Stock strains were cultured in Tween-albumin medium. Incubation in all instances was at 35° C. Animal pathogenicity was determined by inoculation of approximately 2–5 mgm. (wet weight) of bacilli into the groin of young 180–200 gm. guinea pigs. The injected animals were sacrificed and examined at six weeks. Homogenates of tissues showing gross evidence of infection were examined by stained smear and subcultured on Lowenstein's medium. Facilities for histopathological studies were not available.

Performance of the Neutral Red Cytochemical Test—The procedure employed was essentially that described by Dubos and Middlebrook. A loop of culture from a solid, or 1 ml. from a liquid, medium was transferred to a 15 ml. conical centrifuge tube and washed twice with 5 ml. volumes of 50 per cent methanol. The bacilli were then suspended in 5 ml. of Dubos's buffer solution and 0.2 ml. of 0.05 per cent aqueous neutral red added. The neutral red manufactured by the National Aniline and Chemical Company was used in this study. The reaction was read after standing for one hour at room temperature. Virulent strains bound the dye and stained from light pink to deep red; avirulent strains remained colorless. The color of the suspending buffer solution remained amber.

RESULTS

The neutral red reaction was read with the aid of a hand lens and using intense white light as the source of illumination. The intensity of staining varied in different strains from pale pink to deep red, and the time required for take-up of the strain varied from 5 to 60 minutes. It was noted that a considerable number of strains, if allowed to stand for several hours or longer, gave a red-brown color which could be erroneously considered a positive reaction. It was also noted that all of the bacilli of a given strain from solid medium did not bind the neutral red dye. However, the observation of dye-stained bacilli was considered a positive reaction.

A total of 195 acid-fast organisms were examined. One hundred and eighty of these were isolated from patients. Of the 180 recovered from patients, 168 were culturally consistent with *M. tuberculosis* and 12 were acid-fast chromogens. Thirteen of the remaining 15 acid-fast organisms were lyophilized stock mycobacteria, comprised of 4 human, 3 avian, 2 bovine strains, and 4 nonpathogens. The 4 nonpathogens included *M. laticola*, *M. stercoris*, *M. leprae*, and *M. phlei*. The human virulent strain, H37Rv, and its avirulent variant, H37Ra, were included in every series of tests as positive and negative controls. In these controls the results of the animal virulence test and neutral red reaction were in complete agreement in every case.

One hundred and sixty-three acid-fast strains culturally consistent with *M. tuberculosis* were neutral red-positive and produced characteristic disease in the guinea pig (Table 1). Two additional acid-fast strains were neutral red-positive but failed to infect the guinea pig in repeated tests. Three were negative by both the neutral red and animal virulence tests. The 12 chromogenic strains were negative by both tests.

All the virulent stock strains, whether human, avian, or bovine, were positive by the cytochemical test (Table 2). One human, one bovine, and 2 avian strains failed to produce characteristic disease in the guinea pig, although the human and bovine strains were virulent for this animal when first isolated. Guinea pigs, of course, are not usually susceptible to avian strains. The 3 stock avian strains were found to be pathogenic for 16 week old chickens.

None of the known nonpathogens gave

TABLE 1

A Comparative Study of the Virulence of Acid-Fast Bacilli Isolated from Clinical Material Using the Dubos Neutral Red Reaction and Guinea Pig Inoculation

Strains	Number	Cytochemical Reaction		Guinea Pig Virulence	
		Positive	Negative	Positive	Negative
Culturally consistent with *M. tuberculosis*	163	163		163	
"	2	2			2
"	3		3		3
Total examined	168				
Acid-fast chromogens	12		12		12

TABLE 2

A Comparative Study of Virulence of Lyophilized Stock Cultures of Mycobacteria Using the Dubos Neutral Red Reaction and Guinea Pig Inoculation

Strains	Number	Cytochemical Reaction		Guinea Pig Virulence	
		Positive	Negative	Positive	Negative
M. tuberculosis var hominis	4	4		3	1
M. tuberculosis var bovis	2	2		1	1
M. tuberculosis var avian	3	3		1	2
Nonpathogens *	4		4		4

* The nonpathogenic group included *M. laticola, M. stercoris, M. leprae* and *M. phlei.*

a neutral red reaction nor induced detectable disease in the experimental animal.

DISCUSSION

It is significant to note that in no instance was a strain isolated which was culturally characteristic of *M. tuberculosis*, neutral red-negative, and yet pathogenic for the experimental animal, though two strains were isolated which gave a positive cytochemical reaction and were negative by the conventional guinea pig inoculation. The two neutral red-positive guinea pig negative strains culturally resembled *M. tuberculosis var hominis*. However, when they failed to infect the guinea pig, inoculations were made in 16 week old chickens and the results indicated that these strains were avian variants. It must be pointed out here that if the neutral red test had not been available, these two strains, on the basis of their cultural characteristics and guinea pig tests, would have been classified as nonpathogenic mycobacteria. It is significant that these two strains were the only acid-fast organisms recovered in repeated attempts from two patients with a tentative clinical diagnosis of tuberculosis.

Of interest was the fact that one bovine and one human lyophilized strain failed to infect the guinea pig though they were pathogenic for this animal when first isolated. This suggests that certain environmental conditions may modify virulence, as measured by animal inoculation, but does not impair the ability of the strain to bind neutral red. Such an attenuation of virulence is evidenced by BCG strains which give weak positive neutral red reactions but develop only self-limiting infections in the experimental animal. A more comprehensive study of the relationship of the neutral red factor to virulence is in progress in our laboratories.

CONCLUSIONS

The results of a study of 168 freshly isolated acid-fast strains culturally consistent with *M. tuberculosis* suggest that the neutral red test measures the viru-

lence of mycobacteria as satisfactorily as the conventional inoculation of experimental laboratory animals.

The use of the neutral red reaction effects an appreciable saving of time in the laboratory diagnosis of tuberculosis; animal virulence studies require from three to six weeks, the neutral red reaction two hours.

Furthermore, the use of this reaction reduces considerably the health hazard to laboratory personnel which is present when infected animals are maintained for pathogenicity studies.

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Standards of Industrial Illumination

American Standard Practice for Industrial Lighting brings up to date the original standard published 10 years ago. Prepared by the Committee on Industrial Lighting of the Illuminating Engineering Society, the 40-page manual outlines desirable lighting conditions in general. More than 350 industrial operations, tasks, or locations, and recommended quantity of illumination for each, are listed. These levels run from as high as 1,000-foot-candles in supplementary illumination for certain welding operations to less than a one-foot-candle for certain storage areas. Many photographic illustrations display typical industrial lighting installations. Available from Illuminating Engineering Society, 1860 Broadway, New York 23, N. Y.; 50¢.

We are familiar with public health's concern over the medical problems that have been imposed upon it by present-day programs. Here we see some of the beginning steps by which pioneering public medical care programs are assuming their logical preventive functions.

Labor's Horizon for Health*

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THE Brooklyn Tuberculosis and Health Association's invitation to a labor organization to present its point of view on health care is a measure of its broad understanding of labor's role in medical care programs today.

Klem, McKiever, and Lear have stated that in 1949, 58,000,000 persons in this country were included in the civilian labor force. The *New York Times* recent figure for the total employed and unemployed was 61,744,000. If the nonworking family dependents were added to this figure, it is probable that the labor force affects about two-thirds of our total population. It is evident that Labor is People. Each gain made by labor affects a large group of individuals. It is, therefore, no more than a matter of reality to learn what labor seeks on the horizon for medical care in order to develop the theme of this forum, "Profit from Health."

Labor's awareness that it has unmet medical needs is not of recent moment. Proof of this is found in the history of the pioneer days of our country when mining, lumber, and railroad camps in the vast unpeopled and underdeveloped areas had difficulty in inducing men to work or to stay at work because of the lack of physicians' services. Owners of these enterprises found it necessary to assure physicians' services in their camps. Workers also found it necessary to organize fraternal and other social organizations to establish benefits so that they would have some forms of protection against the inroads of disease, injuries, and also the ultimate effect of death of the wage earner.

As the workers unionized to become coherent vocal forces, first things were looked at first. Labor recognized that the human body should not be subjected to long unnatural hours of work; the focus was therefore on a shorter working day and week. Since the standard of living could only be increased with additional purchasing power, it sought better salaries. In time it has included in its demands development of labor-management grievance machinery, expansion and strengthening of workmen's compensation and safety laws, eradication of child labor, unemployment insurance, paid holidays and vacations, hospital insurance coverage, retirement and pension plans, sickness and maternity leave benefits. With job and other social securities gained, greater emphasis is now being placed on acquiring health and medical care benefits. This movement is progressing from the stage of covering only the worker to that of including the worker's dependents.

The workers are reaching out for more

* Presented at the Annual Meeting of the Brooklyn Tuberculosis and Health Association, May 20, 1952.

and more medical security. They wish to make the wondrous modern medical knowledge and skills available unhindered by the specter of unpredictable costs and other financial barriers. Louis Hollander, co-chairman of the New York Joint Board of the Amalgamated Clothing Workers of America, has said:

> Labor views the whole matter of a worker's health fundamentally as an economic problem. The efficacy of even the most perfectly planned and most perfectly administered system of (industrial) medicine and hygiene is necessarily limited by the economic level of men and women who are potential patients of the (industrial) physician. I need not cite the statistics showing the coincidence of a high rate of mortality and morbidity with a low income level.[1]

Furthermore, as an outgrowth of labor's increased knowledge of the quality and adequacy of medical services and technics, it is seeking comprehensive medical care rather than limited types of care: programs which assure a high quality of service by general physicians and specialists qualified in accordance with acceptable professional standards; and service plans rather than those offering indemnification. Experiences with the latter type of benefit has demonstrated that on the average, the patient has only a moderate part of his medical and hospital bills covered, and the fear of the unpredictable additional costs remain as a deterrant to the acquisition of much needed medical care. Labor knows that medical services should be available when needed, for the catastrophic and the day-to-day care, without limitation as to the number and type of services rendered; that the services must made available to the workers and the dependents without regard to race, age, sex, and other similar artificial barriers.

Last on this list of desirables, but far from the least, labor has learned from community organizations such as the Brooklyn Tuberculosis and Health Association and from other agencies and sources of the value of preventive health services as exemplified by periodic health examinations, immunizations, laboratory screening examinations, etc.; and it insists that these play as an important a part of the medical program as do the curative modalities in medicine.

Medical and other social benefits are no longer looked upon as fringe or luxury benefits. These benefits have become necessities in the rising standard of living and have been included in collective bargaining discussions.

In order to achieve better health, workers have taken steps to organize medical care programs, often limited in scope, with the thought that their action was one of expediency, and that with time these goals might be reached. Examples in New York City are the Union Health Center of the International Ladies Garment Workers Union and the health centers of the Hotel Workers and the New York Joint Board of the Amalgamated Clothing Workers of America—the latter, the Sidney Hillman Health Center, was opened on April 16, 1951. In Philadelphia the Sidney Hillman Medical Center was opened in May of 1951.

The trend toward positive action in this field is multiplying. The New York Joint Board of the Laundry Workers, an affiliate of the ACWA, has purchased land and is planning a medical center for its membership. In San Francisco, the Labor Council of the American Federation of Labor is surveying the present medical programs of its union locals in order to determine the necessary features to be included in a comprehensive labor health program, possibly for the entire membership of the Council. The Amalgamated Clothing Workers' unions in Rochester, Cleveland, and Chicago, have also taken steps to determine ways of organizing medical services for their members. All these and many others in existence and to be conceived are mani-

festations of labor's restiveness with the lack of a solution to its unmet health needs. Workers found that they could not and should not wait for the medical profession to find a solution of the problem. Medical care is too urgently needed. Excellently trained men and modern facilities are available. In many instances with the help of employer-contributions, made possible through collective bargaining, medical care programs were established. In others, unions obtained the necessary funds from their own membership. Labor will continue to be dissatisfied with the health and medical situation until medical security is acquired.

Some of the principles laid down for a health program by the ACWA-CIO [2] call for:

1. Establish a coördinated and integrated national health program, including national health insurance which will give all Americans, in health as well as sickness, access to the highest quality of medical care
2. Aid the professional schools through grants for training health personnel, including scholarships to students
3. Aid in the building of hospitals and group medical practice clinics with a minimum of state and local matching funds
4. Aid the extension and expansion of state and local public health services
5. Aid maternal and child health services and expansion of programs for physically handicapped children
6. Develop a mental health program to improve our mental hospitals and for the training of psychiatrists and other mental health personnel
7. Aid in the understanding and prevention of chronic diseases and in increasing facilities and services for care of the mentally ill
8. Extend rehabilitation services to provide aid for those who become disabled each year

Along these lines, an indication of labor's appreciation of modern medical technics is found in its participation in mass surveys. The Brooklyn Tuberculosis and Health Association undoubtedly has a record of the many times it has conducted chest x-ray surveys in union halls and shops. Labor, in conjunction with this and similar agencies, has used every means to acquire the benefits of medical care.

Because it has been shown by the use of this technic that countless lives were saved, innumerable persons spared complications of disease and chronic disabilities, loss of wages, and possible debts for medical expenses reduced, screening technics are incorporated in many union programs for better health.

It is true that sharp discussions are in progress today as to the ultimate value and effect of mass screening procedures as isolated technics to detect suspicious or active disease processes. However, Dr. Petrie's results in Georgia [3] where multiple tests were performed for over 1,000,000 persons indicate the benefits that can accrue to individuals and communities when such procedures are made available and placed in the proper perspective.

Out of 213,488 patients receiving the 70 mm. photofluorograms, 1,648 (0.77 per cent) had evidence of tuberculosis. Of these, 267 were active, 794 of questionable activity, and 567 were inactive. Of added importance here was that of this group, 81.5 per cent did not know of the presence of this condition.

Also, as a result of the screenings by Dr. Petrie and his staff in Atlanta, Ga., 2,400 patients with definite or suspected cardiovascular lesions observed in the photofluorograms and 666 patients with other types of chest conditions were referred to private physicians—a total of 4,714 chest lesions. Of 228,024 serological tests for syphilis, 22,348 gave positive results and of these 11,671 were referred for treatment for the first time and the contacts investigated. Hemoglobin studies gave abnormal results in 9,749, or 5.4 per cent of those tested, and 1.55 per cent of the persons tested for diabetes were confirmed or suspected of having this abnormality, but only 8 per cent of this group knew that they had diabetes.

Dr. Leo Price, director of the Union Health Center said: "The routine miniature roentgenogram of the chest is essential to a worker's health program since it dramatically uncovers conditions which may be overlooked in a larger and active clinical service." [4]

The Sidney Hillman Health Center has made available to its 40,000 members, in addition to the usual curative services rendered by 25 general physicians and 50 specialists, preventive measures such as the periodic health examination, a photofluorogram of the chest, urinalysis, hemoglobin determination, and the serological test for syphilis. Within the next month cytological examination for cancer of the uterus and cervix will be instituted.

There are some physicians who are concerned with the performance of multiphasic presumptive tests without the supervision of a personal physician. This is overcome in our Center because each patient is placed under the care of a personal physician. This objection is also overcome in industrial medical services where the tests are part of preplacement or periodic health inventories.

Case finding technics, by use of the x-ray and other presumptive diagnostic measures, have yielded positive community and individual benefits. It is therefore necessary to make these more and more available to the people of our nation and to integrate the results with personal physicians' services.

Also, the exposure of large groups of people to the case finding surveys is a form of mass health education and may be considered a positive force to improve the health of many more persons.

A handful of professional health educators have been working hard to make the public and profession cognizant of the value of these health measures. The changing public attitude and the additional knowledge acquired by the public are proof that the plantings are beginning to bear fruit and the health educators, thereby, should be greatly encouraged to extend their efforts.

At this point let us look at management's role in this rapidly progressing field. Far from the original concept of laissez faire in matters of sanitation, safety and health, management has become increasingly aware and is ever accepting the fact that improving the health of the workers leads to better production, less turnover of employees, fewer accidents, and decreased Workmen's Compensation and sickness disability rates. More and more factories and shops have been installing in-plant medical services. These have expanded from the care of accidental injuries to include preëmployment and preplacement examinations, care of on-the-job illness, periodic health inventories, as well as psychological and other forms of counseling. Management has also purchased voluntarily various forms of medical or surgical and hospital insurance for their employees and in some instances paid the full costs. Furthermore, as a result of labor-management contract negotiations, management has contributed in whole or in part to the costs of nonindustrial medical care programs for their employees and even for their families.

Industry acknowledges that it is a good business practice to provide maintenance, repair and preventive services for their workers, as well as to their equipment and buildings. The skilled worker is a good investment at all times, particularly so, when production demands are many and the hours of work-loss due to illness and accident must be kept at the lowest level. The costs of providing medical service, industrial and nonindustrial, is offset by the lessened demand on community resources and a decrease in costs to the community.

I am certain that on many occasions employers have been glad that they have voluntarily, or otherwise, participated in medical care programs which have

contributed so much to the health and welfare of their workers and their families. I cite a remark made by the president of the New York Clothing Manufacturers' Exchange at the first annual meeting of the Sidney Hillman Health Center, that his organization "will be pleased to participate through employer contributions in the operation of the Center so that the present necessary practice of charging the members nominal fees for laboratory, x-ray services, and physical therapy would be discontinued."

Since employers have acknowledged the value of incorporating medical care programs in their industries, there is no difference of opinion as to goal. It is now merely a matter of proper timing and rapidity of movement toward the mutually agreed goal.

In addition to the increased span of life and as an outgrowth of better health and medical services, there is another benefit to be gained. I refer to the development of a wider and deeper spirit of brotherhood. You will recall the lines in our stirring hymn, *America the Beautiful*, " . . . and crown Thy good with Brotherhood, From sea to shining sea."

It has been appreciated for a long time, and more recently this understanding has been compounded by the psychiatrists, that intolerance, bias, and discrimination are forms of mental illnesses. If I am not mistaken, only recently the president of the American Psychiatric Association stated that hatred directed at others is a symptom of hatred of oneself. Many of the man-made intolerances arise out of lack of security—jobs, welfare, and social situations. With the diminution of these insecurities, man should have fewer reasons for jealousies, anxieties, and the development of neurotic aberrations. It is therefore important, if not urgent, to use every facility about us to develop healthier bodies and minds in our citizens so that ultimately we come as close as is humanly possible to a fuller understanding of ourselves and those about us, regardless of their age, sex, religion, or color; to the realization of happier homes and communities; and a better America which endowed as it is with the richness arising out of its total resources, human and physical, will be crowned with "good and Brotherhood from sea to shining sea."

This is labor's credo. The view of the horizon is clear and the mists, fogs, and storms that becloud it from time to time will be dispelled by natural phenomena. There can be no other view of the horizon by Labor, the People. This large segment of humanity, making up our great democracy, is deserving as a matter of right of all of the positive and good benefits of advanced health and medical care for longer, healthier, happier, and more rounded lives.

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As long as shortages of competent workers continue to plague public health administration, any personnel practice that promises to improve performance will be of major concern to those who struggle toward better community services. Though this discussion is centered upon one of the most difficult areas—laboratory personnel practice—its applicability is by no means so limited.

Personnel Classification in Public Health Laboratories

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WITHIN the past 15 years there has been a tremendous expansion within governmental units of personnel programs emphasizing the positive approach to the management of personnel in public service, through the application of policies stressing "merit" and "human relationships" in the employee's relationship to his job. On the whole the aims and purposes of such movements have been and are excellent and should be endorsed by both administrators and employees. Such objectives as "securing the best qualified persons for positions," "excluding favoritism and providing an equality of opportunity to all," both in initial appointment and in the promotional processes, "equal pay for equal work," "public employment as an opportunity for service and for a career," are both desirable and necessary.

Unfortunately, this expanding concept of personnel administration by public agencies has by no means been uniform throughout governmental units. It has perhaps reached its highest stage of development in federal and some city services, but in state and local units it will be found in all stages of development. The personnel administrators who guide these various programs are also quite varied in their training and experience and their understanding of the problems involved. This is especially true in the scientific fields.

Personnel administration perhaps can be considered as a science, but it is not a fully developed science and, while its application in certain industrial fields has been fairly well standardized and has yielded proved results, its application to the field of government services is relatively new and to a considerable extent experimental. There is no set pattern covering the processes and contingencies of government employment which can be considered as a "standard method." Rather many personnel administrators are feeling their way and adopting a variety of programs to meet what they consider to be local conditions. In no field is this variation more evident than in the public health laboratories.

Since application of personnel practices to public health laboratories must rest on a firm basis of mutual understanding between laboratory directors, or those in charge of the administration

of laboratories, and personnel directors or their assistants, this paper will attempt to point out some of the problems peculiar to such laboratories and to suggest ways in which personnel policies may be adapted to these special problems, in the hope that such a discussion will lead to better cooperation between the agencies involved at all governmental levels.

THE PROCESSES OF PERSONNEL ADMINISTRATION

A very brief survey of the total picture of the processes included in a comprehensive program of personnel administration may be outlined as follows:

Classification of positions
Pay standardization and administration
Recruitment
Examination processes
Selection of employees, from outside the service and by promotion
Development and training programs
Evaluation of performance
Employee conduct and relationships
Terms of employment and separation
Retirement

THE CLASSIFICATION OF POSITIONS

Because many of these processes are dependent upon the establishment of classes of positions, the problems and procedures of classification are basic to all personnel programs. It has been stated that:

> The class is the basic unit, the *sine qua non* of modern classification. The decision whether or not individual positions are in fact "sufficiently similar" to be grouped together in a class is the very essence of classification.[1] *

As defined by a technical committee of the Civil Service Assembly, a class is:

> A group of positions sufficiently alike in respect to their duties and responsibilities to justify common treatment in selection, compensation and other employment processes, and sufficiently different from positions of other classes to justify different treatment in one or more of these respects. While defined as a group of positions, a class may sometimes consist of but one position where no others of the same kind exist in the service being classified.[2] *

Two other concepts of classification as used in the federal service might be defined:

> The term "Grade" is used to denote a broad group of classes, of various occupations, which carry the same range of compensation.[3] *
>
> Classes may be grouped into a "series" or an occupation, covering the range of classes from the lowest to the highest in the type of work.[4] *

In modern classification practice "the job is the thing" to be classified and not the individual incumbent. Therefore each job or position must be classified in terms of a "job analysis" of:

a. its duties
b. its responsibilities
c. the knowledge and skills which it requires

Two or more jobs which are similar in respect to these three criteria belong in the same class. If two jobs show a significant difference in respect to any one of these factors they do not belong in the same class. However, they may fall into the same grade if they are alike in regard to responsibilities and in the same series if they are alike in knowledge and skills and merely differ in the levels of this factor.

Since the successful promulgation and development of a classification system in public health laboratories can only come through a common understanding between laboratory and personnel administrators, it would be desirable to examine the application of these three criteria to the whole body of public health laboratory personnel.

Duties

The duties of any employee will be primarily determined by the type of

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* Mosher, Kingsley, and Stahl. *Public Personnel Administration* (3rd ed.). New York: Harper, 1950. (1) p. 220 (2) p. 214 (3) p. 220 (4) p. 220.

laboratory in which he is employed. Laboratories are functional units of government designed to render certain services and produce certain products. As these services or products differ, so must the specific duties of all employees of the laboratory differ. This difference may be more marked at certain levels of technical competence than at others. In general, the higher the level of technical and scientific ability, the greater the difference will be. Some activities, such as the cleaning of glassware, are common to all laboratories; others, such as the inoculation of cultures or the use of the chemical balance, are common to most of them; but in a large measure knowledge and skills obtained through quite different types of experience are needed in different laboratories. The ability to assume responsibility for an antigenic analysis of a *Salmonella* organism is quite different from the ability to produce an acceptable diphtheria antitoxin and requires knowledge and skills learned through quite different experiences, although they are both classed as bacteriology.

The Professional Examination Service of the American Public Health Association recognizes five major types of public health laboratories:

1. diagnostic and clinical
2. milk and dairy products
3. water, sewage, and industrial wastes
4. biologics manufacturing
5. chemical

Several of these major divisions can be subdivided and frequently are in the larger laboratory systems. Thus, the diagnostic laboratory may consist of an enteric disease laboratory, a tuberculosis laboratory, and a virology laboratory in addition to the general diagnostic laboratory. The chemical laboratory is frequently divided into a food and drug laboratory, a toxicology laboratory, an industrial hygiene laboratory, and in some states even cosmetic laboratories and horse racing laboratories are found in health departments.

Responsibilities

A broad classification of public health laboratory personnel on a functional basis was made by M. H. Merrill, M.D., in a committee report to the Conference of State and Provincial Public Health Laboratory Directors in 1947 which was published in the May, 1948, issue of *The Public Health Laboratory*. This was adopted and further developed by the Committee on Professional Education of the APHA and included in their second report on the Educational and Experience Qualifications of Public Health Laboratory Workers as published in the August, 1950, issue of the *American Journal of Public Health*.

In brief, and with a few minor changes, these provide for a graded series of responsibilities in public health laboratories with the following functions assigned to each level:

1. Administrative
2. Research and investigation at high scientific levels
3. Supervisory (having charge of several workers or an entire division of the laboratory)
4. Performing the most exacting technical procedures without technical supervision
5. Performing routine examinations under general supervision
6. Performing routine examinations only under immediate supervision (with all results checked by a supervisor)
7. Assisting in technical work, but not responsible for the final steps (pipetting, staining, centrifuging, numbering tubes, etc.)
8. Working in the service divisions of the laboratory (outfit preparation, mailing service, dishwashing, animal care, etc.)

Personnel administrators lay particular stress upon the amount of supervision that an employee either gives or receives. In this connection it is important to point out that there is a difference between administrative supervision and technical supervision in all laboratory fields. In laboratory par-

lance, administrative supervision includes such duties as designating the methods to be used, deciding what examinations shall be made on routine specimens or on the unusual specimen, and the interpretation of laboratory results in addition to those duties commonly associated with organizational administration. These responsibilities are largely confined to the first three levels mentioned above. Technical supervision, on the other hand, is simply the responsibility of making certain that prescribed examinations are made in the designated manner and that the individuals performing technical work do not deviate from their instructions. In general, workers at each level should be able to offer this type of supervision to workers at all lower levels. However, this does not constitute administrative supervision and should be so recognized.

Knowledge and Skills

Knowledge and skills are implied to some extent in descriptions of duties and responsibilities so that specialized knowledge and skills are factors which have not always been regarded as deserving of special consideration in the process of classification. However, in the laboratory field they are so inextricably a part of every position that they are of necessity one of the most important, if not the most important, factors in determining the ability of any individual to perform the duties and meet the responsibilities of each specific position. Personnel administrators usually acknowledge readily the importance of specialized knowledge and skills, and if they can become conversant with the multiplicity of these factors required in a laboratory they will tend to give variations and differences in them greater weight in the classification process. A lack of consideration and specification of specialized knowledge and skills required in a laboratory has led to most of the difficulties encountered in classification practice. The desire of the personnel administrator to arrive at a minimum number of classes has very frequently resulted in combining in a single class positions that require quite diverse specialized knowledge and skills.

The activities of any laboratory will be determined by the scope of service offered and will generally embrace several different scientific fields. Of course, some laboratories will cover more fields than others, but very few public health laboratories confine their activities to a single field. A brief list of the various specialized scientific fields which will be covered by public health laboratories must include:

- Bacteriology
  - General diagnostic
  - Enteric disease
  - Tuberculosis
  - Biologics production
  - Milk
  - Dairy products
  - Water
  - Sewage
  - Industrial wastes
  - Foods
- Biochemistry
  - Clinical
  - Biologics production
  - Food
- Chemistry
  - Clinical
  - Biologics production
  - Milk
  - Dairy products
  - Water
  - Sewage
  - Industrial wastes
  - Industrial hazards
  - Foods
  - Drugs
  - Toxicology
  - Vitamins
- Hematology
- Immunology
- Mycology
- Parasitology
  - Amebiasis
  - Intestinal parasites
  - Malaria
  - Entomology

Pathology
  Anatomy
  Clinical
  Histology
  Physiology

Serology
  Syphilis
  Other diseases

Virology

The exact number of these fields that will be covered by an employee in any specific position in a laboratory will depend on many factors. The scope of service of the laboratory has been mentioned as one of the prime considerations. The organizational structure of the laboratory will also be very important in determining which scientific fields are embraced in any single position. If a laboratory operates on a divisional basis, maintaining for instance a diagnostic division and a serology division (a very common structure), it is essential that employees have specialized knowledge and skills in diagnostic bacteriology and serology. If it is the administrative policy of this laboratory to rotate its employees among and between these two divisions, the employee should have a knowledge of *both* these fields; however, if employees are expected to serve in only a single division, their specialized knowledge and skills must be quite different. In the former instance it would be quite appropriate to designate employees at the same level in these two divisions as holding positions in the same "class." However in the latter instance, where the employees worked, and always worked, in different divisions it is inadvisable to place them in a single class since the positions require quite different knowledge and skills.

There is another method of differentiating between specialized knowledge and skills which could be used much more widely than at present, namely, the establishment of *options* within individual classes. If two positions lie in the same general scientific field, but the specialized requirements are in different areas of that field, it is possible to establish a general class with suitable options which would be subclasses. As an example, consider two senior bacteriologists, one of whom works in the enteric disease division and the other in the tuberculosis division of a large public health laboratory. The general class of Senior Bacteriologist could be divided into two different options. Such options would receive different treatment in respect to the processes of selection, but the same treatment in all of the other personnel processes.

In view of this, it is quite evident that the very core of any classification system of laboratory positions must include a definite decision as to just what knowledge and skills are required for each position and that this must include specialized as well as general scientific fields.

If laboratory and personnel administrators can reach a common ground of understanding and can agree on the delineation of knowledge and skills for each position, the remainder of the classification problem becomes greatly simplified. Obviously the laboratory director has a better knowledge of the scientific problems, while the personnel administrator has a better knowledge of the classification processes; but it is only through a common understanding of these factors that a successful classification can be reached. There is no magic formula for reaching this understanding, since it is largely a matter of individual personalities and must be met in the light of local situations and needs.

Before leaving the subject of knowledge and skills, one should stress again the point that the higher the level of the position the more likely it will be that specialized knowledge and skills will be involved. Certainly there is a point in every laboratory organization where the apprentice type of position is estab-

lished. At this point the beginning worker is apt to enter the service with little or no laboratory experience, and his abilities will be measured largely by scholastic training and achievements. Here in all probability no differentiation will be made between various specialties in a single scientific field, nor perhaps between closely related scientific fields such as bacteriology and serology. However, in the higher levels of laboratory positions, where both academic training and practical laboratory experience are necessary, the type of experience becomes of great importance and variations in knowledge and skills within the broad scientific fields must be recognized.

THE NOMENCLATURE OF POSITIONS

The nomenclature of laboratory positions is at present in a hopelessly confused status. The attempts of both the Conference of State and Provincial Public Health Laboratory Directors and of the American Public Health Association to suggest suitable titles for positions at various levels have met with very little success in most states, although there may be a slight tendency toward acceptance of the proposed terminology in scattered instances. Perhaps, as a better knowledge of laboratory personnel problems comes to the personnel admistrators more uniformity will obtain.

As an example of the confusion and variation in nomenclature of laboratory positions, an experience of the Professional Examination Service of the APHA might be cited. Among the 100 different examinations prepared by that organization for generalized and specialized laboratory positions is one designed for the college graduate with broad generalized training in the laboratory sciences and no public health laboratory experience. The duties of this position are broadly defined as "after a period of in-service training, performs under close supervision routine work in a public health laboratory or some division thereof." During the past 5 years this examination has been assigned in 18 states to positions whose job specifications were essentially those given above. These positions bore 14 different titles, as follows:

Technician
Laboratory Technician
Senior Laboratory Technician
Principal Laboratory Technician
Junior Bacteriologist
Bacteriologist
Bacteriologist A
Bacteriologist I
Bacteriologist IV
Scientist I (Bacteriology)
Assistant Bacteriologist-Serologist
Junior Bacteriologist-Serologist
Serologist A
Assistant Biologist

Some comment on a few of these titles might be made as illustrative of some common practices in nomenclature. Several states use Roman numerals to designate increasing or decreasing levels of difficulty, such as I, II, III, IV, etc. However, Grade I may be either the lowest or the highest level position. In one state, at least, capital letters are used for this purpose, A being the lowest level position. In another state laboratory workers are all called Scientists, with the broad specialty being noted in parenthesis after the name, such as Scientist I (Bacteriology). In another state they were formerly all called Biologists, although they have recently been called Laboratory Technicians I, II, III and IV; Laboratory Technician IV being a Master of Science with four years of laboratory experience, including one year of supervisory experience. These numerals or letters do not always indicate salary ranges; for example, one state has three grades of bacteriologists and two grades of serologists, the salary range of Bacteriologist III is the same as that of Serologist II

and that of Bacteriologist II is the same as Serologist I.

One state has an interesting variation in that salary ranges have been established throughout the state health department with an identifying number attached as a suffix to the title. Thus a Bacteriologist-6 will be in the same salary range as a Chemist-6. This same system has been adopted by another state in classifying its medical personnel, although it has not been applied to their laboratory personnel.

For the sake of uniformity, it would be highly desirable for all personnel systems to adopt the system of nomenclature approved by the APHA. This would give a two-part title:

First—A title to designate the level of responsibility *

1. Director or Assistant Director
2. Principal
3. Associate
4. Assistant
5. Junior
6. Apprentice
7. Laboratory Assistant
8. Laboratory Helper

Second—A name to designate the principal scientific field or if necessary two such names combined in a hyphenated word. Common examples would be:

Bacteriologist
Chemist
Serologist
Parasitologist
Bacteriologist-Serologist
Bacteriologist-Mycologist, etc.

If specialized knowledge and skills within a broad scientific field are required, a subheading of the specialty should be added in parenthesis, such as:

Bacteriologist (diagnostic)
Bacteriologist (tuberculosis)
Chemist (food and drug)
Chemist (industrial hygiene), etc.

This nomenclature would also be used to describe *options* within a single class, as discussed in the preceding section.

* The figures placed in front of these titles correspond to the figures placed in front of the definitions of responsibility levels as given on page 47 of this paper.

THE JOB SPECIFICATION

The next step in the classification of positions is the writing of a job specification to cover the duties, responsibilities, and knowledge and skills embraced in each position. If the above factors have been clearly defined and a definite decision on them has been reached, the actual writing of the job specification should be comparatively easy.

A job specification usually consists of several parts:

Class Title

Titles have been discussed in the previous section, but as a matter of emphasis it can be stated again that a number of positions having similar basic requirements but differing in specialized requirements may be placed in a single class by providing optional subclasses. Thus one may class together:

Senior Chemist (water and sewage)
Senior Chemist (milk and dairy products)
Senior Chemist (food and drug)
Senior Chemist (toxicology)
Senior Chemist (industrial hygiene), etc.

All of these chemists require more or less the same basic training in chemistry, but differ markedly in the specialized knowledge required.

Definition of Duties and Responsibilities

Here should be defined specifically in terms presented in this paper:

a. The nature of the laboratory or the laboratory division in which the position is to be established
b. The scientific specialties which are involved in it
c. The level of responsibility as defined in the functional classification of public health laboratory workers

A typical section under this heading might read:

This is a position in the diagnostic division of a public health laboratory performing rou-

tine examinations to aid in the diagnosis and treatment of communicable diseases. Duties of the position require the performance of routine examinations under general supervision in the fields of general diagnostic, tuberculosis and enteric disease bacteriology, parasitology and mycology.

Typical Examples of Work Performed

This section offers an opportunity to enlarge upon and clarify the preceding section. It also serves as a guide to the applicant for positions in this class as to what to expect on the job. It is not necessary to place in it every type of work that might be expected, but it should be large enough to show a few examples from every scientific field involved.

Minimum and Desirable Qualifications

Definite statements as to education and experience should be placed in this section. If the position should require a person trained in bacteriology, for instance, the specification should state just that. It should avoid the use of such generalities as "graduation from college" if "graduation from college with a major in bacteriology" is meant. It should also avoid placing education in two unrelated scientific fields as alternatives. A laboratory does not usually seek a person who has been trained in bacteriology *or* chemistry, nor one who has majored in bacteriology, biology, zoology *or* botany; usually the laboratory needs either a bacteriologist or a chemist or a person trained in some definite scientific field for each specified position.

Neither is it desirable to specify two levels of formal education as alternatives, even though experience qualifications may be varied. An example of this is the state which has a specification calling for "a Bachelor's degree plus four years of experience, a Master's degree plus two years of experience, or a Doctorate." If it is desirable to substitute experience for formal academic training, and there is general agreement that in many instances it is desirable, it is much better to express the requirements in terms of formal education modified by some such phrase as "or its equivalent," determining the "equivalent" by suitable examination processes rather than by an arbitrary statement that any certain number of years of experience is the equivalent.

An alternative method of defining desirable qualifications is to specify the degrees of knowledge in specific scientific fields by the use of a series of terms such as, comprehensive, advanced, thorough, working, and elementary. This has the advantage that knowledge at different levels in different fields can be specified. For example, the specification might read "advanced knowledge of bacteriology and a working knowledge of parasitology and mycology," etc.

Experience qualifications should also be expressed in definite terms, taking into account the scientific field and the type of laboratory in which acceptable experience might have been gained. In writing job specifications for the higher level positions, it should be remembered that in almost every instance such positions require *both* postgraduate education and experience in a public health laboratory.

This section deals with *minimum* educational and experience qualifications and its requirements should be those which are *minimum at the time of appointment*. The specification should not require knowledge or skills that are to be taught to the successful candidates after appointment through inservice training.

THE ESTABLISHMENT OF CLASSES

Having outlined the duties and responsibilities of each position, having established the nature and degree of knowledge and skills required for it, and having written a job specification for it, the next step is to place these positions in suitable classes.

All jobs which are similar in all respects must certainly be placed in a single class. A number of jobs which have the same requirements in regard to basic training and knowledge in the same scientific field, but which differ in respect to specialized training and experience, can be placed in the same class if within that class a series of *options* is established recognizing special qualifications and experience required for specialized duties within the same broad scientific field. Jobs which require knowledge and skills in different scientific fields must be placed in different classes.

Grades

A series of jobs which bear the same relative responsibilities in a variety of situations or in different scientific fields is properly placed in the same grade. Usually this grade will be the basis for assigning salary levels.

Series

A series of jobs which is in a promotional line should also be established so that each employee can be assured of some opportunity to advance within the organization and can have advance information as to which position is next in line to the position he holds. If it is desirable in any laboratory to place restrictions on the lines of promotion, this should be fully understood between the laboratory and personnel administrators and clearly stated to the employees. Thus, if it is in the interest of any laboratory that no employee shall advance beyond a certain level without a college education, or if it is intended to require a doctorate for certain high level positions, this should be clearly understood and stated. These restrictions need not apply only to formal education, they may also be placed upon experience by requiring experience in public health laboratories or in certain scientific specialties. Certain positions may even be reserved for persons who have had experience in the lower levels of the particular division of the laboratory in which the position is established, or in other words they may be only open to promotional appointments. However, all such restrictions are best laid down as a policy in line with the concept that positions are classified and not the individuals who hold the positions.

THE APPLICATION OF CLASSIFICATION INFORMATION

Classification data may be applied to many other phases of the total program of personnel administration than those already mentioned. In recruitment of candidates for positions they can be readily shown just how their qualifications fit into the minimum requirements for various positions. Promotional opportunities can be shown to them through the classification series, and salary ranges both in their initial position and after promotion can be indicated. Development and training programs within the laboratory organization can be geared to promotional opportunities. If the positions are properly graded, each employee can be certain that he is receiving the same rights and privileges as every other employee bearing equal responsibilities. Performance evaluation or job-rating is closely tied to classification as it is frequently the basis on which promotional opportunities are offered to individual employees.

EXAMINATION PROCESSES

In no part of personnel programs is proper classification more important than in the selection of personnel to fill the various positions. If classification establishes a ladder on which positions can be placed, then the selection of individuals to fill these positions becomes a process whereby the fitness of candidates to occupy a certain round on

that ladder is determined. This is usually called the examination process.

The term "examination" is quite likely to recall school days and those hours of indecision spent in trying to find the correct answers to a series of questions posed by the teachers, or at least answers which would please those teachers. However, in personnel selection the examination processes go far beyond a written examination and in modern practice, although the written examination is usually a most significant part of the total process, it is only part of the rather complex machinery which strives to find "the best qualified person for the position."

Two steps should precede the actual examination of any individual for any position:

a. A job analysis to determine the *abilities* and *capacities* required for success in the position and in the series of positions to which it offers promotional opportunities

b. A careful examination of the *types of evidence* that will best demonstrate those abilities and capacities. Among these must be considered:

Training—including educational criteria and levels attained in academic work

Experience—in similar work or in work requiring similar abilities

Tests:

Written tests—to measure educational qualifications, knowledge of broad scientific fields, and specialized knowledge

Performance tests—including performance of certain procedures in the laboratory as well as a battery of the so-called aptitude tests, manual dexterity, mechanical ability, accuracy of observation, speed of movement, etc.

Oral tests—or personal interviews in which the experienced interviewer can evaluate personality traits, such as initiative, ingenuity, ability to cooperate, etc.

Personal investigation—of the candidate's past experience to determine success in past positions, personality traits, community behavior, reliability, etc.

Having determined which of the above types of evidence are applicable to the position in question and having decided upon the relative weight which should be applied to each, the examination of individual candidates can proceed, covering all of the above factors that measure fitness for the position. Obviously the relative weight which is to be placed on each of these factors will vary with each position, but there is a real need for greater uniformity than prevails at present among various personnel systems in assigning weights to these factors.

THE SELECTION PROCESS

If the job analysis has been precise and accurate and if the examination processes have been correctly weighted, the selection of candidates becomes almost automatic provided that suitable candidates have presented themselves. Obviously any examination process can do no more than rank the candidates in the order of their fitness for the job, and if no suitable candidates have applied, the results will be unsatisfactory.

The written examination is particularly dependent upon the proper evaluation of the needs of the position and the accuracy characterizing the preparation of the job specification, for unless the needs of the position are *definitely* and *specifically* stated in the job specification, either the examination will not fit the specification, or the position. In the wide experience of the Professional Examination Service of the APHA, most of the difficulties encountered have hinged around poorly written or indefinitely stated job specifications. When incompatible alternates are given as requirements for admission to examinations, or when the requirements are so vaguely stated that they cannot be interpreted in terms of definite knowledge and skills, it is inevitable that misfit examinations will occasionally be applied.

At this point, more than anywhere else in the field, there is need for an

experienced and well integrated personnel administrator who understands laboratory problems. Too frequently the inexperienced administrator will place too much weight on one factor of the selection process to the exclusion of other factors which may be more important. A complete selection process will involve consideration of all the types of evidence and a careful weighting of each of them in respect to their ability to measure fitness for the position.

The Probationary Period

As a final step in the selection process, the probationary period of employment is most important. The modern program of personnel administration will provide for a probationary period of some stated length at the end of which the appointee may be discharged from the service or transferred to some other position, perhaps in an entirely different department, without the formality of making or proving charges of any sort. This provision is placed in the system for the protection of the administrators of departments. Failure to make use of it, either through inertia or through a fear that the next appointee will be no better or even worse than the incumbent (a viewpoint frequently expressed) weakens the department and tends to destroy the morale of the entire staff.[4] The laboratory administrator should be objective and stern, and not hesitate to exercise his right to terminate any appointment at the end of this provisional period if a new appointee proves to be unsatisfactory in any respect.

CONCLUSION

A powerful personnel department is apparently a permanent part of administrative processes in all government units. Indications are that in time personnel practices in government may become more stabilized and uniform throughout the country. In the meantime, public health laboratory administrators will have to study the problems and procedures of personnel administration, and personnel administrators will have to recognize that there are problems peculiar to public health laboratories which are deserving of special consideration. Intelligent classification of laboratory positions is basic to all personnel problems of laboratories and will do much to increase the efficiency of the services offered by them.

In only a sixth of all the states is there a concerted and continuing effort to improve maternal mortality experience through investigation, reporting, and consultation. Minnesota has succeeded in reducing maternal deaths from 2 to 0.6 per 1,000 births—in one decade—and aims to do still better. Does this story suggest anything to the other five-sixths of the states?

Minnesota Maternal Mortality Surveys*

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MATERNAL mortality rates have shown a continuous and significant decrease for the past twenty or more years. This continued reduction is due not to any one factor but includes better undergraduate training of physicians, increasing postgraduate and refresher courses in obstetrics, increasing percentage of babies born in modern hospitals, widespread use of chemotherapeutic agents, and early and adequate blood replacement. In addition, public health measures such as education of the public in the importance of early and adequate prenatal and obstetrical care as well as maternal mortality surveys for the education of physicians and hospitals are other factors in the reduction of maternal mortality.

Maternal mortality rates in many states are now lower than what was regarded as the irreducible minimum 10 years ago. In spite of these low rates, well conducted surveys indicate that many deaths are still preventable. Information obtained from state and territorial health officers indicates that 19 states and the District of Columbia are currently carrying on maternal mortality surveys. In addition, a number of larger cities are carrying on local studies as well. Twelve states send out questionnaires to the attending physician or the hospital for additional data. A number of states obtain practically all of their information from the death certificates. Such certificates have been shown to be inadequate and frequently misleading, with marked differences between the reported cause and the actual cause of death. Furthermore, many deaths associated with pregnancy are not reported as such. Only 8 states, including Minnesota, carry on a thorough investigation of all maternal deaths by personal visits of trained obstetrician-investigators.

Minnesota's first state-wide maternal mortality survey was conducted from July 1, 1941, through June 30, 1942. It was discontinued during the war because of lack of personnel. The survey was resumed in 1950 and is now in its third consecutive year. A maternal mortality survey, or a neonatal study, by its very nature will evoke valid criticisms in the handling of a certain number of the deaths being studied. No one likes to be criticized, especially by a regulatory agency. Criticism, however, by the physician's own organization is usually more acceptable and thus has greater educational value. While the survey is a joint undertaking of the Minnesota State Medical

* Presented before the Maternal and Child Health Section of the American Public Health Association at the Eightieth Annual Meeting in Cleveland, Ohio, October 23, 1952.

Association and the Minnesota Department of Health, emphasis must be placed on the fact that this is a study carried out by the State Medical Association in an effort to reduce preventable deaths by eliminating all possible hazards of pregnancy and childbirth. It therefore has inestimable public relations value for physicians. Cooperating in the survey are the Department of Obstetrics of the University of Minnesota and the Minnesota Hospital Association.

The survey is conducted by a group of physicians known as the Minnesota Maternal Mortality Committee. The committee members are selected by the Maternal Health Committee of the State Medical Association and are appointed by the Council of the Association. They serve without remuneration. The committee consists of 8 obstetricians representing all parts of the state in addition to the director of the Division of Maternal and Child Health of the State Department of Health who acts as secretary.

As soon as maternal death certificates are received by the Division of Vital Statistics of the Minnesota Department of Health, photostat copies are prepared and forwarded to the Division of Maternal and Child Health. There has been considerable delay between the death of the patient and notification to the committee because of the routine procedures of reporting and filing death certificates. As a result, a period of from one to two months may elapse before an appointment can be made for the obstetrician's visit. In addition, deaths occurring during the postpartum period frequently do not mention pregnancy on the death certificate. By cross-matching all female deaths between the ages of 15 and 45 years with all births in the preceding 3 months, 9 additional deaths associated with pregnancy or the puerperium were found during 1950.

To make it possible to investigate maternal deaths more promptly as well as to provide for accurate reporting of deaths during the three months postpartum period, the State Board of Health enacted the following regulation: "Any death associated with pregnancy (including abortion and extrauterine pregnancy), or the puerperium (for a period of three months postpartum), whether or not it is the actual cause of death, shall be reported by mail within 3 days after death to the Minnesota Department of Health, Division of Maternal and Child Health, by the attending physician and by the hospital where the death occurred." This regulation is in addition to the usual procedure of filing a death certificate. Since its enactment, no additional deaths have been found by cross-matching.

The survey includes all women who die during pregnancy or within the 3 months postpartum period, regardless of the actual cause of death. It is conducted as follows: As soon as a maternal death is reported, an appointment is made with the attending physician. The obstetrician-investigator (or interviewer) visits the hospital and reviews the hospital chart and nurses' notes, the anesthesia record and the pathologist's report. He talks with hospital personnel who came in contact with the patient. He visits the attending physician, obtains the history, including prenatal care, and discusses various aspects of the death for the completion of a detailed questionnaire. He interviews the consultant, if one had been called in. If necessary, he talks to relatives regarding previous history and details of the pregnancy. He is entirely objective and impersonal in his questioning and makes no comment or criticism of the handling of the case. That is the function of the committee.

The investigator then prepares a summary outlining the course of events in chronological order for presentation to the committee at its periodic meeting. The record is anonymous. The com-

mittee is told only whether the attending physician was a general practitioner or a specialist, and his training, and whether the death occurred in a small or medium-sized rural hospital or in a metropolitan hospital. After thorough discussion by committee members, final decision is made as to the cause of death, adequacy of the care and conduct of the case, contributory and noncontributory factors in regard to prenatal care, labor, delivery and postpartum care, autopsy findings and their completeness, accuracy of the death and birth certificates, preventability of the death, and finally the determination of the responsibility for death—due to patient, physician, hospital, disease or any combination of these factors. A copy of the summary with its final assessment is mailed to the physician and to the consultant.

TABLE 1

Survey of Maternal Deaths

Minnesota—1941 and 1950

	1941 Survey		1950 Survey	
	No.	*Per cent*	*No.*	*Per cent*
Obstetrical deaths	93	83.0	46	67.6
Nonobstetrical	19	17.0	22	32.4
Disease	(16)	(14.3)	(16)	(23.5)
Traumatic	(3)	(2.7)	(6)	(8.8)
Suicide	(1)		(3)	
Homicide	(1)		(1)	
Auto accident	(1)		(2)	
Totals	112	100.0	68	100.0

To point out the significant findings of the current survey and to demonstrate the improvement that has occurred in the past decade, a comparison will be made between the results of the survey carried out during the 12-month period beginning July 1, 1941, and ending on June 30, 1942 (which will be referred to from now on as the "1941 survey"), and the survey made between April 1, 1950, through March 31, 1951 (hereafter referred to as the "1950 survey").

Table 1 shows that the 1941 survey totaled 112 deaths, of which 93 were obstetrical (maternal) deaths as coded by the National Office of Vital Statistics, and 19 were nonobstetrical, that is, deaths associated with pregnancy, labor, or the puerperium for a period of 3 months, but not directly due to pregnancy. The 1950 survey totaled 68 deaths, 46 obstetrical (maternal), and 22 nonobstetrical.

It will be noted that while about one-sixth (17 per cent) of the deaths in the 1941 survey were due to nonobstetrical causes, almost twice as many, one-third in the 1950 survey (32.4 per cent), were nonobstetrical. In other words, with the decreasing number of obstetrical deaths in recent years more interest and effort have been devoted to the deaths associated with pregnancy but not directly due to pregnancy. In such deaths we are particularly concerned with the adequacy of the prenatal, natal, and postnatal care. Interestingly enough, even some of these nonobstetrical causes of death are considered preventable.

There was a marked increase in the number of live births in Minnesota from 1941 through 1950, accompanied by a continuous and marked increase in the number of hospital births as well as a decrease in maternal mortality (Table 2). In 1941 there were 54,542 live births; 73 per cent occurred in hospitals. One hundred and seven maternal deaths

TABLE 2

Total Live Births, Per cent in Hospitals, and Maternal Mortality

Minnesota, 1941–1950

	Live Births	*Per cent Births in Hospital*	*No. of Maternal Deaths*	*Maternal Mortality per 1,000 L. B.*
1941	54,542	73.0	107	2.0
1942	58,867	80.0	94	1.6
1943	58,361	85.0	88	1.5
1944	55,750	90.0	72	1.3
1945	54,143	93.0	74	1.4
1946	67,303	95.0	69	1.0
1947	75,468	97.0	47	0.6
1948	72,664	97.0	48	0.7
1949	74,026	98.0	54	0.7
1950	75,337	98.3	46	0.6

TABLE 3

Prenatal, Labor, and Postpartum Care

Minnesota—1941 and 1950 Surveys

	Prenatal Care				Labor and/or Delivery Care				Postpartum Care			
	1941 Survey		1950 Survey		1941 Survey		1950 Survey		1941 Survey		1950 Survey	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
None	8	7.1	6	8.8	22	19.6	14	20.6	28	25.0	20	29.4
Adequate	2	1.8	15	22.1	7	6.3	21	30.9	4	3.6	18	26.5
Faulty but noncontributory	47	42.0	33	48.5	22	19.6	7	10.3	13	11.6	3	4.4
Faulty and contributory	55	49.1	14	20.6	61	54.5	26	38.2	67	59.8	27	39.7
Totals	112	100.0	68	100.0	112	100.0	68	100.0	112	100.0	68	100.0

occurred, with a maternal mortality rate of 2.0 per 1,000 live births. In 1950 there were 75,337 live births; 98.3 per cent occurred in hospitals. There were 46 maternal deaths, a rate of 0.6 per 1,000 live births. There was, therefore, a 40 per cent increase in the number of live births, a 35 per cent increase in the number of hospital births, accompanied by a 70 per cent decrease in maternal mortality. The apparent discrepancy between the number of maternal deaths in 1941 and 1942 as shown in Table 2 and the number of maternal deaths in the 1941 survey is due to the fact that the first survey included the last 6 months of 1941 and the first 6 months of 1942. During this period of the survey there were 55,293 live births, 93 maternal deaths, and a maternal mortality rate of 2.06 per 1,000 live births.

There has been a marked improvement in the type of prenatal care given (Table 3). Only 1.8 per cent were considered to have had adequate prenatal care in the 1941 survey. Almost one-half (49.1 per cent) of the deaths had faulty prenatal care which was considered contributory to the deaths. In the 1950 survey, 22 per cent had adequate prenatal care and only 21 per cent had faulty care considered to be contributory to the fatal outcome.

Labor or delivery care or both and postpartum care showed similar marked improvement in the 1950 survey, but more than one-third of the deaths had faulty care that contributed to the deaths (Table 3).

Consultations were obtained in 44 per cent of the deaths in 1941 but in only 9 per cent were they considered adequate (Table 4). In the 1950 sur-

TABLE 4

Adequacy of Consultations

Minnesota—1941 and 1950 Surveys

	1941 Survey			1950 Survey		
	No.	Per cent		No.	Per cent	
None	63	56.2		29	42.6	
Adequate throughout	10	9.0	43.8	22	32.4	57.4
Inadequate	39	34.8		17	25.0	
Totals	112	100.0		68	100.0	

vey consultations increased to 57 per cent, but what is even more important is the fact that 32 per cent were considered adequate.

In the 1941 survey, 23 women died undelivered. Of the 89 who were delivered, 50 had operative deliveries (56.2 per cent) and 39 had spontaneous deliveries (43.8 per cent) (Table 5). In the 1950 survey, 17 women died undelivered. Of the 52 who were delivered, 28 had operative deliveries (53.8 per cent) and 24 had spontaneous deliveries (46 per cent). Thus over half of the deaths in both surveys occurred in women who were subjected to operative deliveries.

Table 6 shows that 62 operative pro-

TABLE 5

Type of Delivery

Minnesota—1941 and 1950 Surveys

	1941 Survey			1950 Survey		
	No.	Per cent	Per cent Omitting Those Who Died Undelivered	No.	Per cent	Per cent Omitting Those Who Died Undelivered
Died Undelivered	23	20.5		17	24.6	
Spontaneous	39	34.8	43.8	24	34.8	46.2
Operative	50	44.7	56.2	28	40.6	53.8
Totals	112	100.0	100.0	69 *	100.0	100.0

* 68 patients—1 set of twins.

cedures were performed in the 50 operative deliveries in the 1941 survey. Five surgical inductions of labor, 1 mid forceps, 2 high forceps, and 4 accouchments forcés, followed by version and extraction, account for the 12 additional operations. A total of 84 operative procedures were done or attempted on 54 patients. Caesarean section was done on 12 patients, 24 per cent of the operative deliveries. While it would be expected that more operations would be carried out on the cases terminating in death because of more complications, many were considered radical operations for which there was no indication.

In the 1950 survey, 36 operations were performed in the 28 operative deliveries. Five surgical inductions of labor, 1 mid forceps, 1 high forceps and 1 version accounted for the 8 additional operations. Sixteen of the 28 operative deliveries were indicated (57 per cent), 9 were not (32 per cent), and 3 were questionable. Nine operations contributed to the deaths of the patients. Caesarean section was done on 9 patients (32 per cent of the operative deliveries). Three sections contributed to the death of the patient. A total of 61 operative procedures were done or attempted on 38 patients, fewer than half of which were indicated (28 procedures). It is obvious, therefore, that surgical procedures, and particularly Caesarean sections, play an important role in maternal mortality.

The primary causes of death are listed in Table 7. In the 1941 survey, 72 per cent of the obstetrical deaths were due to toxemia, hemorrhage, and infection. There were 5 deaths due to heart disease and 3 anesthetic deaths. In the 1950

TABLE 6

Operative Deliveries

Minnesota—1941 and 1950 Surveys

	1941 Survey	1950 Survey
	No.	No.
Low forceps	14	11
Mid forceps	2	1
High forceps	2	1
Breech extraction	3	1
Accouchment forcé	3	1
Version and extraction	10	1
Hysterectomy	1	2
Dilatation and curretage	3	1
Caesarean section	12	9
Total operative deliveries	50	28
Multiple operations	12	8
Total Operations	62	36

TABLE 7

Primary Causes of Obstetrical Deaths

Minnesota—1941 and 1950 Surveys

	1941 Survey			1950 Survey		
	No.	Per cent		No.	Per cent	
Toxemia	7	7.5	72.1	13	28.3	63.0
Hemorrhage	30	32.3		9	19.6	
Infection	30	32.3		7	15.1	
Heart disease	5	5.4		4	8.7	
Anesthesia	3	3.2		4	8.7	
Other obstetrical causes	18	19.3		9	19.6	
Totals	93	100.0		46	100.0	

survey, toxemia, hemorrhage and infection accounted for 63 per cent of the obstetrical deaths, with a marked increase in toxemic deaths and a decrease in deaths due to hemorrhage and infection. Two deaths were due to amniotic fluid embolism. Four deaths were due to heart disease and 4 were due to anesthesia, 2 due to spinal and 2 due to inhalation anesthesia resulting in vomiting and aspiration. Anesthesia was, therefore, responsible for 9 per cent of the deaths. But in addition, it contributed to 12 other deaths. Anesthesia is thus becoming a more important factor in maternal mortality.

Autopsies were obtained in 36 deaths or 32 per cent in the 1941 survey (Table 8). They were requested in 21 additional deaths (19 per cent) but were refused by the family. In 1950, autopsies were obtained in 26 deaths or 38 per cent and were requested but refused in 13 deaths (19 per cent). It should be noted, however, that only 25 per cent of the autopsies obtained were considered adequate in 1941, in contrast to 92 per cent in 1950.

TABLE 8

Adequacy of Autopsies on Obstetrical Cases

Minnesota—1941 and 1950 Surveys

	1941 Survey			1950 Survey		
	No.	*Per cent*		*No.*	*Per cent*	
Obtained and adequate	9	8.0	32.1	24	35.3	38.3
Obtained and inadequate	27	24.1		2	3.0	
Not requested	55	49.1		29	42.6	
Requested and refused	21	18.8		13	19.1	
Totals	112	100.0		68	100.0	

Analysis of maternal death certificates indicates that physicians are careless in completing these important records (Table 9). In the 1941 survey, 63 per cent were incorrect. Only 17 per cent were complete and correct. In the 1950 survey, one-half were incorrect and 22 per cent were complete and correct.

TABLE 9

Accuracy and Completeness of Maternal Death Certificates

Minnesota—1941 and 1950 Surveys

	1941 Survey		1950 Survey	
	No.	*Per cent*	*No.*	*Per cent*
Complete and correct	19	17.0	15	22.0
Complete but incorrect	25	22.3	7	10.3
Incomplete, otherwise correct	22	19.6	19	27.9
Incomplete and incorrect	46	41.1	27	39.8
Totals	112	100.0	68	100.0

The most significant finding and improvement relates to preventability of death (Table 10). The committee considered that 82 deaths (73 per cent) in the 1941 survey were preventable. In the 1950 survey, only 32.4 per cent (22 deaths) were considered preventable. In other words, while three-fourths of the maternal deaths were considered preventable in 1941, only one-third were considered preventable in 1950—a very significant improvement.

TABLE 10

Preventability of Obstetrical Deaths

Minnesota—1941 and 1950 Surveys

	1941 Survey		1950 Survey	
	No.	*Per cent*	*No.*	*Per cent*
Preventable	82	73.2	22	32.4
Nonpreventable	27	24.1	45	66.1
Not determinable	3	2.7	1	1.5
Totals	112	100.0	68	100.0

Surveys such as have been described have a desirable psychological effect on physicians and hospitals as well as on the public. Physicians become more careful, more conservative in their treatment, and are more likely to request earlier consultation.

It is important that the results of these studies should be used for the education and guidance of physicians at hospital staff meetings, at county medical society meetings, at refresher courses, for undergraduate teaching at the medical schools, and for publication in medical journals.

As a result of such surveys further reduction in maternal mortality may be expected. At the end of the 1941 survey, when Minnesota's maternal mortality rate was 2.0 per 1,000 live births, the committee expressed the hope that it might be possible in 10 years to reduce Minnesota's maternal mortality rate to 1.0 per 1,000 live births, then considered the irreducible minimum. Five years afterwards, in 1947, Minnesota's rate was 0.6, the lowest in the United States in that year. In 1951 the rate was reduced to 0.3 per 1,000 live births. Even this rate, however, is not the irreducible minimum. While there were only 27 maternal deaths for over 80,000 live births, almost one-third of the deaths were considered preventable. And 2 states, Connecticut and Oregon, reduced their rates to a new low of 0.1 per 1,000 live births. There is thus indication that there is still room for improvement.

ADA Film Library Reorganized

The film library of the American Dental Association has been reorganized and increased 50 per cent. Consisting of dental health education subjects and scientific films, the film library is now a part of the Association's Bureau of Library and Indexing Service. A total of 65 titles and 298 prints are now available. They cover, in addition to scientific fields, such dental health subjects as oral hygiene and fluoridation.

Requests for bookings should be made a month in advance. A catalogue and further information may be obtained from the American Dental Association Film Library, Bureau of Library and Indexing Service, 222 E. Superior St., Chicago 11, Ill.

Discussion*

Maternal Mortality Study in Illinois†

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ILLINOIS is one of the eight states which carries on a thorough investigation of all maternal deaths by personal visits of a qualified obstetrician. Two groups are engaged in this program: one in the City of Chicago, and the other in the rest of Illinois. The Chicago investigation, dating from 1937, is under the auspices of the local Department of Health and the Subcommittee on Maternal Mortality of the Joint Maternal Welfare Committee of Cook County. The long name of this committee is misleading: it concerns itself with the study only in Chicago. The rest of Cook County with its 11 hospitals and more than 20,000 births in 1951 is included with the other 101 counties of the state, where the study, begun in January, 1948, is the joint responsibility of the Bureau of Maternal and Child Health of the State Department of Public Health and the Maternal Welfare Committee of the Illinois Medical Society. It is the study in this "downstate area"—i.e., Illinois outside of Chicago—that I wish to discuss. In making comparisons, I will refer to the Minnesota, 1950, survey.

Table 1 shows the number of live births and fetal deaths occurring in hospitals and homes during each of the 4 years; it also shows a steady increase in hospital deliveries from 92.9 per cent in 1948 to 96.8 per cent in 1951. Illinois has not reached the 98.3 per cent hospital births that Minnesota shows.

Table 2 shows there were 309 maternal deaths in 433,787 live births, giving a maternal mortality rate for the 4 years of 0.71 per 1,000 live births. The rate shows a decrease from 0.87 in 1948 to 0.61 in 1950. This rate of 0.61 among 107,464 live births compares favorably with the Minnesota rate of 0.6 in 75,337 live births. During 1951 there was an increase over 1950 of more than 8,000 live births with a rise in the mortality rate of only 0.01. The 12 maternal deaths in 1948 which occurred outside of hospital maternity divisions were taken from death certificates and were not studied in detail; they were, however, considered in the computation of the mortality rate shown in this table, and in the listing of causes of death to be shown later.

Table 3 shows that during the 4-year period, detailed studies were made of 418 deaths; of these, 121, 29 per cent, were assigned to nonobstetrical conditions, and 297, 71 per cent, were charged to obstetrical causes. The Minnesota percentages were 32 and 68 respectively.

* Presented before the Maternal and Child Health Section of the American Public Health Association at the Eightieth Annual Meeting in Cleveland, Ohio, October 23, 1952.

† The study in Illinois, unlike that in most other states, is done solely by the consultant of the Bureau of Maternal and Child Health. To cover a territory of 385 miles long by 218 miles wide, with an area of more than 56,000 square miles, called for an average of well over 25,000 (25,687) miles of travel during each of the four years of the study—1948 through 1951. I will omit the discussion of our method of getting reports of deaths associated with gestation, of the manner of the study, and of the selection of the Maternal Welfare Committee.

TABLE 1

Births in Downstate Illinois

	Hospital			Home			Downstate			
	Live Births	Fetal * Deaths	Total	Live Births	Fetal * Deaths	Total	Live Births	Fetal * Deaths	Total	Per cent of Hospital Births
1948	96,594	1,526	98,120	7,183	271	7,454	103,777	1,797	105,574	92.9
1949	101,338	1,516	102,854	5,677	200	5,877	107,015	1,716	108,731	94.6
1950	102,900	1,518	104,418	4,564	167	4,731	107,464	1,685	109,149	95.7
1951	111,935	1,703	113,638	3,596	122	3,718	115,531	1,825	117,356	96.8
	412,767	6,263	419,030	21,020	760	21,780	433,787	7,023	440,810	95.1

* Fetuses advanced to twentieth week of uterogestation.

TABLE 2

Maternal Mortality in Downstate Illinois

	Live Births	Maternal Deaths			Maternal Mortality Rate per 1,000 Live Births
		Hospital	Home	Total	
1948	103,777	79	12 *	91	0.87
1949	107,015	70	10	80	0.75
1950	107,464	58	8	66	0.61
1951	115,531	68	4	72	0.62
	433,787	275	34	309	0.71

* Not studied.

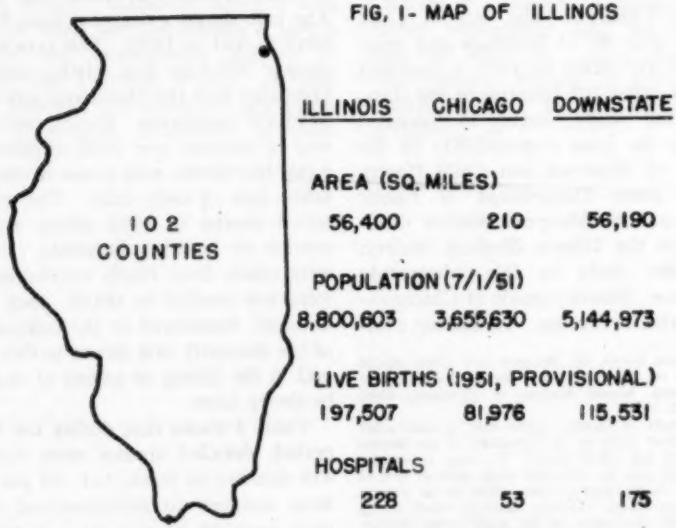

FIGURE 1 gives pertinent data as to the size of the state and of its two divisions: Chicago and the downstate region; it also shows the population, the number of live births for 1951, and the number of hospitals in these respective areas.

TABLE 3

Number of Cases Studied

	Maternal	*Nonmaternal*	*Total*
1948	79	27	106
1949	80	38	118
1950	66	31	97
1951	72	25	97
	297	121	418

Table 4 shows the types of delivery in 218 postpartum deaths. Briefly, attention is directed to the high percentage of operative deliveries—70.6—(more than double the percentage of operative cases among all the parturients of the state) and the predominance of Caesarean section—42.7 per cent—as compared with an over-all state average of 3.7 per cent. It is a tragic comment that 17 of the 93 sections—18.3 per cent—were considered unwarranted by the committee.

Minnesota showed operative deliveries in 53.8 per cent with Caesarean section in 32.1 per cent.

Minnesota records indicated that 17 women died undelivered. During our 4-year study, there were 39 such deaths; 16 of these were delivered post-mortem; including 3 sets of twins, there were 11 live-born and 8 fetal deaths. Of the 11 live-born infants, 4 died neonatally, 7 infants survived.

Table 5 lists the causes of death. For the 4-year period, hemorrhage was responsible for death in 33.7 per cent, toxemia in 25.9 per cent, infection in 12.9 per cent. This gives a total for this triad of 72.5 per cent. These figures contrast with those of Minnesota, where toxemia ranked first with 28.3 per cent, hemorrhage second with 19.6 per cent, and infection third with 15.1 per cent, for a total of 63.0 per cent. Our findings that hemorrhage is the leading cause of maternal death is in agreement with those of most investigators.

In Illinois 27.5 per cent of the deaths were due to various conditions, including 15.5 per cent due to embolism (4 amniotic fluid), and 4.9 per cent to anesthesia. Deaths in Minnesota due to anesthesia formed 8.7 per cent of the total number.

Table 6 gives the audit of the state Maternal Welfare Committee of 297 maternal deaths: 17.5 per cent were assessed as having been preventable, and 62.0 per cent as having had preventable factors, for a total of 79.5 per cent for these 2 classifications; 19.2 per cent were considered not preventable; in 1.3 per cent classification was not determined. This is quite in contrast with the decision of the Minnesota committee which regarded 32.4 per cent preventable, and 66.1 per cent nonpreventable. Again, it may be said that the Illinois findings are in closer accord

TABLE 4

Types of Delivery in Maternal Deaths

(In 218 Cases)

					Number	*Per cent*
Spontaneous					64	29.4
Operative					154	70.6
Forceps			45	20.6		
Low	29	13.3				
Mid	9	4.1				
High	7	3.2				
Cesarean section			93	42.7		
Classic	65	29.8				
Low	22	10.1				
Porro	6	2.8				
Extraction			6	2.7		
Version and extraction			6	2.7		
Multiple operations			4	1.8		
			154		218	100.0

TABLE 5

Causes of Maternal Deaths

			Number	*Per cent*
Hemorrhage			104	33.7
Antepartum	48	15.5		
Postpartum	37	12.0		
Abortion	3	1.0		
Ectopic	16	5.2		
Toxemia			80	25.9
Preeclampsia	17	5.5		
Eclampsia	51	16.5		
Other	12	3.9		
Infection			40	12.9
Puerperal	20	6.5		
Abortion	19	6.1		
Ectopic	1	0.3		
Various Causes			85	27.5
Embolism	48	15.5		
Anesthesia	15	4.9		
Shock	5	1.6		
Acute heart failure	5	1.6		
Acute pulmonary edema	3	1.0		
Cerebral hemorrhage	2	0.6		
Incompatible blood	2	0.6		
Protein hydrolysate reaction	1	0.3		
I-V gelatin (?)	1	0.3		
Sulfa crystallization	1	0.3		
Ileus	1	0.3		
Puerperal psychosis	1	0.3		
			309	100.0

TABLE 6

Audit of Maternal Deaths by State Maternal Welfare Committee

Classification	*Physician*	*Responsibility*		*Joint or Others*	*Number*	*Per cent*
		Patient	*Hospital*			
Preventable	34	4	–	14	52	17.5
Preventable factors	118	23	1	42	184	62.0
	152	27	1	56	236	79.5
Per cent	64.4	11.5	0.4	23.7		
Not preventable					57	19.2
Undetermined					4	1.3
					297	100.0

with reports issued by other committees.

Responsibility in the 236 deaths audited as being preventable or as having had preventable factors was assigned to the physician in 64.4 per cent, to the patient in 11.5 per cent, to the hospital in 0.4 per cent, and to any combination of these 3 or to others in 23.7 per cent.

Tables have been prepared to indicate maternal deaths by age, race, marital status, gravidity, trimester, their relation to delivery, and interval elapsing between admission to hospital and death, and between delivery and death. Other tables deal with data on new-born, mortality rate by hospitals and by counties, inaccuracies in certification of cause of death, maternal autopsies, and quality of prenatal care and of records. To conserve space these 15 tables will not be shown. Brief mention, however, may be made of 3 items: In 1950, there were errors in certification of cause of death in 6.2 per cent as compared with 50.0 per cent in Minnesota; there were 45.5 per cent autopsies against 38.3 per cent in Minnesota. As for quality of prenatal care, both states give nearly the same percentages for those receiving adequate care: 26.5 in Minnesota, and 25.8 in Illinois, but widely dissimilar figures for those who had no care: 29.4 per cent in

Minnesota against 10.6 per cent in Illinois. The remaining percentages were recorded as faulty in Minnesota, and as fair, poor, and unknown in Illinois.

In conclusion, the study in Illinois verifies the opinion of the Minnesota survey as to its importance in saving lives of mothers and new-born infants, its helpfulness in betterment of obstetric practice, and its proved value to physicians, public health workers, and hospital personnel.

Fiftieth Anniversary of the Henry Phipps Institute

During the week February 2–7, 1953, the Henry Phipps Institute of the University of Pennsylvania will celebrate its Fiftieth Anniversary. The Institute for the Study, Treatment and Prevention of Tuberculosis was founded in 1903 by the industrialist Henry Phipps of Pittsburgh, whose interest in tuberculosis was stimulated by Dr. Lawrence F. Flick of Philadelphia, a pioneer in the campaign against tuberculosis in this country, and one of the founders of the National Tuberculosis Association. The Institute opened its doors for patients on February 2, 1903. It became a part of the University of Pennsylvania in 1909. On February 2, 1953, open house will be held at the Institute, in the building at 7th and Lombard Streets, Philadelphia, in which the Institute has been located for the past forty years. On Friday, February 6, formal exercises will be held at the University of Pennsylvania, with an afternoon medical session and an evening banquet, tendered by the University of Pennsylvania for friends of the Institute and distinguished guests.

The chairman of the Fiftieth Anniversary Program, which has arranged the celebration, is Dr. Frank A. Craig, associate director of the Institute and professor emeritus of Clinical Medicine, a member of the Institute's original staff.

Principal speakers during the afternoon program on February 6, will be Dr. J. Burns Amberson, professor of medicine, College of Physicians and Surgeons, Columbia University, New York City, who will speak on "The Treatment of Tuberculosis," and Elizabeth K. Porter, professor of nursing, Western Reserve University, Cleveland, Ohio, who will speak on "Nursing in Tuberculosis." In the evening Dr. Thomas Parran, dean of the Graduate School of Public Health, University of Pittsburgh, will speak on "The Prevention of Tuberculosis." Dr. Craig, associate director of the Institute, and Fannie Eshleman, director of public health nursing, will take part in the afternoon exercises and discuss clinical and public health practice in tuberculosis. Dr. Norman Topping, vice-president in charge of medical affairs of the University, will preside at the afternoon session. Dr. Esmond R. Long, director of the Institute, will preside at the evening session. William H. DuBarry, acting president of the University of Pennsylvania, and Robert T. McCracken, chairman of the Board of Trustees, will address the guests of the evening on special phases of the Institute's work.

Reassuring is this account of the safeguards erected to insure the most productive allocation of federal funds for the development of community facilities in defense areas. It will be read with profit if only to answer him who uses "bureaucrat" as a term of derogation.

The Role of the Public Health Service in the Defense Community Facilities Program*

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THE President, on November 1, 1951, approved the Second Supplemental Appropriation Act of 1952. Since this bill contained funds for use in administering Title III of Public Law 139, the Defense Housing and Community Facilities and Services Act of 1951, the Public Health Service for the first time was able to make loans or grants directly to municipalities for the construction of various types of community facilities of significance to the public health.

The community facilities for which the Public Health Service is responsible under Public Law 139 include hospitals and health centers, water purification and sewage treatment plants, and refuse disposal facilities and services. In the area of interest to public health workers, the Housing and Home Finance Agency has authority to assist projects for water source development, water distribution, and the collection of sewage.

A formal Joint Policy Committee for Community Facilities was established between the Federal Security Agency and the Housing and Home Finance Agency almost at the start of the program. It has continued to function in the interest of establishing consistent policies in the two agencies with respect to the administration of P. L. 139. As you might suspect, this development has interested students of public administration.

The initial appropriation measure contained four million dollars for the Public Health Service to be granted or loaned to municipalities to assist them in financing water purification, sewage treatment, or refuse disposal facilities. However, the Senate report accompanying this appropriation measure stated that: "No funds have been allowed—either assistance or administrative—for construction, operation, development, or administration of day-care or recreation facilities nor for hospitals and health centers and hospital and related services." The Third Supplemental Appropriation Act, approved June 12, 1952, contained a four million dollar addition to the original appropriation and no prohibition against spending part of this new money for hospitals or health centers. Appropriations to the Housing and Home Finance Agency to carry out its community facilities responsibilities under P. L. 139 have totalled $20,625,000.

Since this Act indicates that this program should be carried out as a joint effort of local governmental units and the federal government, the long history of successful partnership between the Public Health Service and state authorities indicated the importance of their closest collaboration in its administra-

* Presented before the Engineering Section of the American Public Health Association at the Eightieth Annual Meeting in Cleveland, Ohio, October 23, 1952.

tion. Even though loans or grants made under the Act are contractual relationships between the Service and the local project sponsors, every reasonable effort is made to have the appropriate state authorities brought into the negotiations leading up to the consummation of each project. Specifically, it is our policy that all waterworks, sewage disposal, refuse disposal, hospital, and health center projects, whether assisted by the Public Health Service or the Housing and Home Finance Agency, must be approved by the appropriate state agency. The Act itself specifies that ". . . housing or community facilities constructed by the United States pursuant to the authority contained herein shall conform to the requirements of State and local laws, ordinances, rules, or regulations relating to health and sanitation, and . . . shall conform to the requirements of State or local laws, ordinances, rules, or regulations relating to building codes."

FEATURES OF THE ACT

The Act has several interesting features. For instance, no funds may be made available unless the applicant is in a "critical defense housing area." In order to qualify as a critical defense housing area, a community must have all of the following conditions:

1. A defense plant, or installation, either existing or proposed
2. Substantial in-migration
3. A substantial shortage of housing or community facilities or services, or both

Responsibility for designating critical defense housing areas rests with the Defense Areas Advisory Committee, which is made up of representatives of the Department of Defense, the Economic Stabilization Administration, and the Housing and Home Finance Agency.

Another feature is the so-called "means test" clause. The purpose of this requirement is to place squarely upon the affected community maximum responsibility for paying for community facilities construction. Only when it is clearly evident that private borrowing would result in the imposition of an increased, excessive tax burden, or an unusual or excessive increase in the debt limit, may assistance be given under the terms of the Act. Responsibility for carrying out the financial analyses necessary to make these determinations is placed in the Housing and Home Finance Agency. However, standards for making such determinations have been developed jointly by the Housing and Home Finance Agency and the Public Health Service.

In this connection, it is the Joint Committee's considered opinion that it was not the intent of Congress to require that a community completely exhaust its borrowing capacity before federal financial assistance could be made available. This policy determination was reached only after the most spirited debate. It was finally agreed that some margin should be left in the community's borrowing capacity to take care of facilities and services needed for or required by the defense effort which could not be met under the terms of P. L. 139.

Decisions as to the borrowing capacity of communities at best are difficult to make. For instance, in most states, municipalities are authorized without limit to borrow for the construction of revenue-producing facilities such as waterworks. In other cases, the financing of community facilities is limited by statute. It may be impossible for the municipality to float bonds other than those for general obligations. In this case, if there is a statutory debt limit, the municipality may have no flexibility in the amount of borrowing that it can do. In some states it would require a constitutional amendment to alter local debt limits!

For instance, in some cities, revenue from waterworks is used in part to support other municipal services. One

municipality which we have aided uses about half of its water revenues each year to support other municipal services. You may ask: Why are not these waterworks revenues used exclusively for the waterworks? That is a nice question, but we have adhered to the position that Congress did not intend that the federal government should impose new financial policies in cities otherwise qualifying for assistance under the Act. Furthermore, in some cities utility revenues are considered to be part of the general revenues, and earmarking them for water use only might well result in an undue increase in property or other municipal taxes.

It is obviously most difficult to maintain uniformity in determining the ability of communities to pay for new facilities required as a result of rapid population growth. As a practical matter, the greatest need may be during the early construction period when a rapid influx of workers creates a population pressure which will most likely be relieved when the new establishment is placed in operation. As a mayor or city manager, how would you finance community facilities projects to take care of 40,000 construction workers for a three- or four-year period when the permanent population increase may be foreseen to be only eight or ten thousand?* Will your electorate support large bond issues, particularly if it is not happy about the in-migration of the workers and their families? What is your position if the impact is due to in-migration resulting from the rapid expansion of a military facility which may or may not be permanent?

There are wide differences in municipal financing practice in various parts of the country. The credit rating of municipalities varies widely. Many cities are able to borrow on revenue-producing bonds at interest rates only slightly in excess of two per cent per annum, while others find it difficult to borrow at interest rates in excess of four per cent per annum for loans of equivalent length.

Many communities have long-range capital improvement programs. Because of the sudden impact of the mobilization effort, projects planned for construction five or ten years hence are needed now. The questions arise then whether such a community should be forced to upset its long-term plans, borrow to the limit of its resources, and thereby place in jeopardy its orderly future public works program. Or, is a grant to such a city justifiable although it may have some unused borrowing capacity? As you may well imagine, if we insisted on providing only loans to those communities which have a long-range capital improvement program until they borrowed to their existing debt limits, we might be putting them at a disadvantage with those communities that have unmet needs, no funds, and but vague ideas for future development. Furthermore, a city with a long-range financial plan is normally a city above average in financial management.

As an example of a completely different problem, let me cite our experience with a very rapidly growing small city which at the moment is at the limit of its bonded indebtedness. Undoubtedly, this city can afford to pay for a large part of the required construction if the debt limit is raised to reflect new valuations. Obviously, there will be delays in raising the debt limit. Since the town at the moment cannot borrow from private sources because of the debt ceiling, the question arose: Could it borrow from the federal government? The answer appears to be yes. Incidentally, this community is in one of the few states where it does not require legislative action to change municipal debt limits and the appropriate state commission has under consideration the necessary changes. It is anticipated that the town ultimately will be able to get cheaper

money from private sources. Meanwhile, the Public Health Service has loaned it more than a quarter-of-a-million dollars so that construction of sorely needed water and sewage treatment facilities may begin.

I cite these points about financing community facilities because I believe that the experience which we have had in this program should have a sobering effect on health officials. As you know, each of us in our enthusiasm sometimes promotes public works for the improvement of the public health which are in excess of what is needed or of a quality superior to those actually needed to assure meeting minimum standards.

I am particularly impressed with the fact that community facilities of the type which we in public health promote may be so expensive if not scheduled for orderly development that small communities going ahead with their individual projects may as a result be mortgaged to the hilt; thus preventing the timely growth of other significant facilities and services such as schools, recreation facilities, or municipal fire and police protection. I am sure most health authorities are well aware of this problem. But we all need perspective in making recommendations, and especially in issuing orders. We will gain that perspective from experience in programs such as this, even though it is limited in scope and size.

LOANS VERSUS GRANTS FOR REVENUE-PRODUCING FACILITIES

From the beginning of the present program, the question repeatedly has been raised: Why are grants needed for revenue-producing facilities? Why is not federal aid for waterworks in particular limited to loans? This line of questioning has been particularly evident in appropriations hearings.

The answer to these questions is at best a matter of judgment. Many of you will recall that loans made under the Lanham Act during World War II in many instances ultimately had to be converted to grants, or the indebtedness was written off at a ridiculously low rate. Now, there are numerous municipalities in which there is no assurance of a permanent population increase (e.g., extra-cantonment areas, or industrial areas in which the impact will be large but only for a short time). It is our opinion that rapid expansion of waterworks to take care of peak population loads which will not be sustained may place a heavy and long-term indebtedness on a community with the result that its financial situation will be embarrassed for as long as a generation. Indeed, most of the towns which have been given grants for waterworks improvements under P. L. 139 otherwise would not be able financially to weather the storm that would result from a sharp cut in military spending. In a few instances, the financial condition of the applicants has been such that it literally would be impossible for them to provide the facilities when needed, and serious delay in the defense effort would thereby result.

LIMIT OF FEDERAL ASSISTANCE

The Act specifically limits the amount of federal aid that may be given on any project. Grants or loans may not exceed the portion of the cost of a facility which is attributable to the national defense activities in the area, and which are not to be recovered by the community from other sources. This provision of the Act is aimed to prevent the use of funds appropriated thereunder for correction of community facilities deficits of long standing.

In practice, the rule in determining the extent of defense impact has been to study existing facilities (including their inadequacies), the programming of new housing, and the expected population increase. On the basis of these engineering studies and population estimates an effort is made to arrive at a reasonable

evaluation of that part of the total need which is clearly caused by in-migration, new housing, or new industrial activity. In some instances, such as an entirely new facility, the defense impact is determined to be the same as the rate of population increase since June, 1950. In other cases, although rare, a defense impact of 100 per cent may be found in a community having a considerably lower proportionate population increase. Such a finding might be made for a town where the sewer outfall was on the outskirts at the start of the Korean conflict, but which is now in the midst of a newly created colony of homes. Even though a 100 per cent defense impact may occasionally be determined, in no instance has the Surgeon General approved a project which provided for no local participation.

Under the terms of the Act, the Surgeon General and the Housing and Home Finance Administrator are authorized to establish interest rates on loans which may be made. This sounds like a fairly simple administrative decision to make. As a matter of fact, however, and even though the amounts of money involved are comparatively small, both the Treasury Department and the Federal Reserve Bank Board of Governors had to be consulted in order that interest rates on loans made under this Act would not be out of line with interest rates on long-term borrowing by the government.

This program is neither to provide incentives to municipalities for necessary community facilities nor to compete with private lending sources; rather, it is to assist those communities which need additional facilities now and which they cannot reasonably provide without federal financial assistance. For those communities which in the normal course of events will be able, because of the permanent population increase, to finance the necessary facilities, it was the intent of Congress that they should be helped to borrow money at a reasonable interest rate but not at a rate which was below that which the federal government itself has to pay for long-term loans. On the other hand, it was not intended that the government should enter into competition with the private money market. Interestingly enough, after thorough consideration of the rate, including an original proposal for step-like increases depending on the length of time during which loans would run, it was set at 2.5 per cent. Almost on the day of announcement of the rate, the long-term interest rates for government loans rose another quarter of a per cent so that the rate was raised to 2.75 per cent.

As I indicated earlier, appropriations under the Act have been limited. As a matter of fact, in the Supplemental Appropriation Bill for 1953, the Committee on Appropriations of the House of Representatives provided therein that "none of these funds shall be available after December 31, 1952, except for program liquidation." This has been interpreted to mean that no project can be approved and no allocation of loans or grant funds made after that date. Incidentally, available funds will probably be exhausted before that date in any case.

However, the Public Health Service will not be out of the community facilities business this year. Supervision during construction is required to be sure the requirements of the law are met, the federal funds are spent effectively, and the community facilities required by the defense effort are provided adequately and soon. While the Public Health Service favors a policy of minimum interest in strictly municipal affairs, it is realized that many Public Health Service responsibilities remain after a project is approved.

WHAT PROJECTS ARE TO BE AIDED?

We have given consideration to a system which would make possible the

establishment of priorities between projects. This problem presented what appeared at first to be almost insurmountable difficulties because applications for hospitals in some communities had to be dealt with simultaneously with projects for waterworks, sewage treatment plants, or refuse disposal works in others. As a rule of thumb, however, we have taken the position that projects without which programmed defense housing could not or would not be built would have the highest priorities. In the second category are those projects the lack of which will not impede housing construction but without which the health of the community would be seriously jeopardized. Finally, projects in the lowest category would be those without which the defense program would, so far as the particular defense area in question is concerned, be appreciably retarded or jeopardized.

AVAILABILITY OF MATERIALS

This program started at a time when many materials of construction were difficult to get. Close collaboration with the National Production Authority has resulted in the establishment of a policy in that agency assuring the highest priority to projects approved for loans or grants. Because of this policy, we have had no evidence that contractors on approved jobs have been hampered by shortages of critical materials.

DEFERRED OR DISAPPROVED PROJECTS

There have been several questions raised in cases where projects which have been actively promoted by state health departments for many years have had to be disapproved when P. L. 139 assistance was requested. The Act prohibits the use of funds appropriated under it to meet deficiencies existing at the start of the present emergency. Accordingly, we have denied assistance to some municipalities for construction of sewage treatment works. The latter may seem to be a short-sighted policy on the part of the Public Health Service, particularly because of its deep involvement in the national water pollution control program. However, the following questions are answered as the ultimate test of whether or not an application will be approved: Did the problem exist before the defense effort began? Has it been severely accentuated as the result of defense activities? Would failure to construct the proposed facilities seriously jeopardize the public health or the defense effort?

From the legislative history it is clear that Congress considered this program to be of an emergency type, and that maximum reliance was to be placed on the ability of communities to solve their own problems. The very limitation of funds appropriated under the Act, including the searching questioning of Congressional appropriations committees, makes it imperative that only the most critical projects be approved. Neither the Service nor the Housing and Home Finance Agency takes the position that projects actively promoted by state or local authorities are not necessary or desirable. We are trying to carry out the mandate of Congress, and we must do this job with small appropriations and widespread demands which have developed in recent months.

USE OF EXISTING COMMUNITY FACILITIES

Although federal financial assistance may be given to defense communities for public works construction, it has been the policy of the government from the outset of the present mobilization effort to place defense contracts and to build defense establishments in areas that already have adequate facilities. Only in rare instances such as accompany vast new enterprises similar to the atomic weapons program has this not been true. That this policy has been generally adhered to is borne out by a few simple statistics.

As of October 15, 1952, 208 areas had been declared critical in accordance with the provisions of P. L. 139. Furthermore, the 70-odd applications to the Public Health Service for financial assistance under the Act have been received from fewer than 50 of these critical defense housing areas. It is our belief that the pressure for P. L. 139 assistance would have been even greater if it were not for: (1) the aforementioned policy of avoiding the development of new areas; (2) the large volume of public works construction since the end of World War II which was superimposed on the defense community facilities program of 1940–1945; and (3) the comparatively sound financial condition of most American cities at the outset of hostilities in Korea.

Public Health Nutrition Training

A graduate program in public health nutrition has been developed cooperatively by the Graduate School of Public Health of the University of Pittsburgh and the Pennsylvania State College. An 18-month program leading to a master of science degree with a major in public health nutrition given by the State College provides for approximately one-third of the work to be done at the University of Pittsburgh. Field work in health departments and other agencies is an integral part of the program. Within the framework of a general plan, each student's program will be arranged on an individual basis, recognizing previous training, type of experience, and interests.

Inquiries should be addressed to Dr. Miriam E. Lowenberg, Head, Foods and Nutrition, School of Home Economics, State College, Pennsylvania.

Proposed Report on Educational Qualifications of School Physicians*

This is a provisional report published at the request of the Committee on Professional Education of the American Public Health Association before transmittal to the Governing Council in order to permit the members and Fellows of the Association to review it and to offer criticism and suggestions. All comments will be carefully weighed by the Committee on Professional Education and accepted changes will be incorporated in the report before presentation to the Governing Council for action.

I. GENERAL SCOPE OF THE FIELD

A. *Specific Contributions to Public Health*

School physicians have always had unique opportunities to improve the health of children and communities. For many years the physical examination of pupils was regarded as the most important function of the school physician. Today, it is recognized that the physician has responsibilities of a much broader nature. Although not responsible for medical care of individual children, his successful contribution to the school health program necessitates that he have an understanding of:

1. The growth and development of children
2. Diseases of children and particularly the health and accident hazards important to children of school age
3. The values, methods and limitations of advisory service to parents, teachers, school administrators, and pupils concerning the promotion of optimum growth and development
4. The over-all school program and the types of adjustment which are possible and necessary for some children because of health reasons
5. Methods of integrating school health services with health education, physical education, recreation, special education, lunchroom services, and other aspects of school life
6. The treatment facilities of various types available in the community
7. Technics of counseling with parents, pupils, and teachers concerning health problems, methods for their follow-up, and ways of solving them
8. Individual and community health problems which may be attacked through education
9. The place of the school as an important center for improving the health of a community
10. The effect of environmental factors, physical and emotional, on the health, safety, and growth of pupils
11. The effect of working conditions, physical and emotional, on the health and attitudes of teachers, and thus indirectly on pupils
12. Principles and technics of group relations and group work, since the school health program must be a cooperative enterprise if it is to be successful

The modern functions of the school physician, as described in the following pages, enable him to contribute much more to the health and welfare of children and of the community than did the medical examiner or inspector of past years. They necessitate, however, special educational qualifications over and above the M.D. degree. The purpose of this report is to describe a broadened concept of the school physician's functions and to recommend the training and experience necessary.

B. *Future Outlook*

With increased public attention being given to the continued improvement of child health, public health and education authorities face greater demands for

* This report, like all other statements of the committee on professional and technical qualifications in public health, is subject to periodic revision in order that it may be kept abreast of the best thought.

This proposed report is a revision of the Report on Educational Qualifications of School Physicians approved by the Governing Council on October 4, 1944, and is intended to supersede the earlier report.

further development of school health programs. Well qualified medical leadership oriented to a preventive approach is essential to sound school health work in both private and public schools.

C. *Number Engaged in this Field*

Over 8,000 physicians in the United States give either part-time or full-time service to schools. A large proportion of these are general practitioners; only 4.0 per cent are pediatricians. About 20 per cent are health officers, the percentage of these being small in metropolitan areas but increasing in less populated sections. During the past 25 years the number of full-time physicians in schools has increased considerably.

D. *By Whom Employed*

School physicians may be employed either by the department of health or the board of education, or jointly. In some states the law requires that boards of education employ school physicians. In other places the health department is legally responsible for school medical work and may include school health services as part of the responsibilities of a director of maternal and child health. In some localities the education department contracts with the local health department for school health work, including the employment of physicians, nurses, and sanitary inspectors. In smaller communities the full-time health officer is sometimes designated school physician or, if qualified, may perform the functions of this position as a normal part of his responsibilities. The condition of paramount importance to the school physician is not the particular board that employs him but the presence of wholesome constructive relationships between the two boards.

E. *Promotional Progress*

Opportunities for advancement by school physicians occur through promotion from positions involving clinical work to administrative positions, by moving from smaller to larger school systems, by promotional progress through the health department, and through the growth and expansion of local, state, and national programs.

II. TWO CATEGORIES OF SCHOOL PHYSICIANS

Variations exist in the responsibilities and duties of school physicians depending in part on the size of the schools served, the number of physicians employed, and the completeness of the school health program. In smaller communities one physician may be employed to serve several schools; in many areas a part-time physician is employed. In a large school system there may be many physicians working under the general supervision and direction of a chief physician. In still larger school systems the chief physician may have one or more deputies, some of whom may have special titles descriptive of their specialized duties.

To differentiate between the physician who administers, or assists with the administration, of a school health program, devoting his full time thereto, and one who works under the supervision of a director of school health, two categories of school physicians are designated for the purpose of this report. They will be referred to here as "Director of School Health Services" and "School Medical Adviser." These titles are not necessarily recommended to school systems, but are used here to differentiate between the qualifications needed for the duties performed by two classes of medical personnel

1. *Director of school health services*—Regardless of whether this is his actual title, this type of school physician will ordinarily be a full-time employee of the board of education or the health department, with a rank of, or equivalent to, an assistant superintendent for those

employed by schools or assistant health officer for those employed by health departments. He establishes policies, selects other medical personnel, is responsible to the school superintendent or health officer, or both, supervises, guides, and evaluates all medical phases of the school health program.

Ideally, the medical aspects of the school health program in all schools should be administered and supervised by a physician with the special qualifications set forth in V.A., page 80. This is almost an essential in large communities. In smaller communities a practical solution would be for several school systems in one or more counties or districts to join in the employment of such a person. In small communities it is also often practical to employ the health officer in this capacity especially if he has the basic qualifications set forth in V.A., page 80 and has the ability to administer the two positions. This has the advantage of assuring the integration emphasized above.

2. *School medical adviser* — Regardless of whether this is his actual title, this type of school physician will be a staff member working under the direction of a "Director of School Health Services." While good administration will require that the director consult his staff members regarding policies and procedures, "School Medical Advisers" will be concerned primarily with carrying out established procedures. They will ordinarily be part-time physicians. They will be recruited from competent physicians in the community who wish to devote part of their time to public health and whose qualifications meet those listed below.

The selection of "School Medical Advisers" may rest with the superintendent of schools or the health officer, subject to such Civil Service or Merit System regulations as may exist. In large communities, the superintendent of schools frequently delegates to the director of school health services responsibility for selecting school medical advisers since this act usually calls for careful scrutiny of personal and professional qualifications, a procedure which is best carried out by one who is himself well trained in medicine and public health. Consultation with the medical profession is desirable.

III. FUNCTIONS OF DIRECTORS OF SCHOOL HEALTH SERVICES

The duties of a physician who serves as "Director of School Health Services" will include:

1. *Planning and implementing the school health program*—The school physician works cooperatively with school administrators, teachers, dentists, nurses, dental hygienists, counselors, health educators, psychologists, lunchroom managers, teachers of special education, physical educators, parents, and representatives of professional organizations and voluntary health and welfare agencies, in formulating plans for a broad, integrated school health program and devising ways for implementing the plans. The school health program is a cooperative enterprise both inside and outside the school. It needs to be an integral part of the total school program, and also an integral part of the total community health program.* The school physician interprets his job and the entire school health program to agencies outside the school, including medical and dental societies and voluntary health agencies. He elicits and fosters the assistance of departments and individuals within the school. He recognizes the interrelationships of all individuals and groups who can help attain the goal of healthier, happier children.

2. *School safety and the care of emer-*

* The school administrator is responsible for integrating the activities of the entire school system with the work of many agencies in the community. In his work with community health agencies the school physician is guided by the administrator's general policies and keeps him currently informed.

gency sickness and injury—The school physician, in cooperation with principals, teachers, nurses, and others, should formulate specific policies and procedures for the care of school emergencies. The role of the teacher, nurse, and physician should be delineated by the proper authorities and each should be informed of his responsibility. The physician's professional knowledge of the results and underlying physical and emotional causes of accidents makes him a valuable consultant in safety education. If indicated, the school physician should recommend resource people for expert inspection of school premises for safety hazards.

3. *Professional consultation in health education*—The medical examination of a pupil in the presence of the parents * can be made one of the most potent health education influences in the child's life. These examinations offer the school physician opportunities of presenting health information to pupils and parents, and of conferring with teachers regarding individual findings. Correcting misconceptions, dispelling superstitions, and instilling a desire for accurate, scientific facts are fundamental contributions of physicians to health education. They can help to motivate children and parents to have existing defects corrected and to develop an interest in the promotion of optimum health.

The physician may serve as a resource person or technical adviser in health education. He can assist in the preparation of health courses; he can check the medical accuracy of study and source materials; suggest timely topics for inclusion, and advise on the selection of health facts important for pupils as distinguished from those of less importance. *Health in Schools*, the Twentieth Year Book of the American Association of School Administrators (revised edition, 1951) states:

> In the modern school the functions of the school physician are largely educational. The school needs a medical inventory of the health status of its children, both for their general welfare and to indicate necessary variations in school procedures. The health appraisal examination, ideally made in the presence of the parents, serves to screen out children whose conditions require diagnosis and those whose obvious health needs require immediate attention. To the family physician and to available clinics or other approved medical agencies belongs the responsibility for diagnosis and appropriate treatment. To the school physician and to other members of the staff belongs the responsibility of result-producing health guidance in cases where school action is indicated.

4. *Formulation of plans for the health appraisal of pupils* †—Such plans should include securing health histories; planning for the systematic and continuous observation of the health of pupils by teachers and school nurses; administering screening tests for vision and hearing acuity and measuring growth in height and weight (by teachers, technicians, or nurses); conducting medical and dental examinations and, where indicated, psychological examinations. The school physician should provide leadership for the development and conduct of the entire program of health appraisal and should secure the assistance of such specialists as are needed to assist in planning its various parts; for example, the otologist should assist in determining procedures for hearing tests, the ophthalmologist for vision tests, etc. An important function of the physician is stimulation and participation in continuous inservice training of teachers relating to their activities in health appraisal.

5. *Periodic medical examinations*—

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* Elementary school children are usually best examined in the presence of one or both parents. High school students are often seen individually, and a consultation with parents arranged at a later time, if necessary.

† For suggestions relating to this aspect of the program, see *Health Appraisal of School Children*, Joint Committee on Health Problems in Education of the National Education Association (Washington, D. C.) and the American Medical Association (Chicago, Ill.).

The school physician should assist in developing plans whereby each pupil will periodically receive a medical examination either by his own physician or by a school physician. These examinations should be an integral part of the health appraisal plan. They should be used to demonstrate the value of medical examinations, to give children the educational experience of learning what their state of health is, how to protect it, or if necessary, how to improve it. Medical examinations may reveal conditions that adversely affect the health or educational progress of children and lead to recommendations for treatment or for the adjustment of the school program to the individual child's needs. "Medical examinations should be sufficiently painstaking and comprehensive to command medical respect, sufficiently informative to guide school personnel in the proper counseling of the student, and sufficiently personalized to form a desirable educational experience." *

6. *Formulating and supervising a program of health counseling*—Programs of health appraisal cannot achieve optimal results unless provision is made for subsequent counseling through which pupils, teachers, and parents are informed of appraisal findings and stimulated to take whatever action is needed. Teachers and parents are often unaware of abnormalities and their significance to the health and education of the child, and are frequently unfamiliar with the sources of treatment. In addition to finding children in need of medical treatment, health appraisal will reveal children who need special educational programs, such as lip reading, speech correction, sight conservation, visiting teacher service, modified physical education, a shortened school day or rest periods. The school physician should be responsible for planning with school and community groups so that each school child can secure whatever treatment, education, or other service is needed to protect and improve his health or facilitate his growth and development. The physician should guide physical education teachers in providing modified physical education or corrective physical education for those with postural defects or crippling disorders.

7. *Responsibility for the prevention and control of communicable diseases in the school*—Procedures established by the school physician and health officer for preventing the spread of such diseases must be carefully explained to administrators, teachers, custodians, bus drivers, lunchroom workers, parents and pupils. Smallpox revaccination, diphtheria reimmunization, and such other specific preventive measures as are supplementary to the earlier protection given infants and preschool children and are approved by the local medical profession are systematically organized by the school physician, bearing in mind that these can be potent and beneficial educational experiences. The health officer often delegates to the school physician responsibility for advising and assisting school personnel in carrying out measures for the control of epidemics. Guidance in the use of tuberculin testing and other methods of tuberculosis case finding are also the province of the school physician.

8. *General supervision of sanitation and other environmental health factors within the school buildings and on the school grounds*—The school physician should help schools obtain such specialized inspections as are needed to meet proper standards for the safety of water, food and milk supplies, disposal of wastes, sanitation of lunchrooms, of drinking fountains and wash basins, illumination, heating and ventilation, and safety of the gymnasium, playground and swimming pool.

9. *Medical advice to school authori-*

* National Committee on School Health Policies. *Suggested School Health Policies.* Chicago, Ill.: American Medical Association, 1946.

ties on mental and emotional health influences—This includes advice regarding the length of the school day, extracurricular activities, frequency of recess periods, types of examinations and methods of marking.

10. *Professional guidance in the field of teacher's health*—The teacher's mental as well as her physical health is of direct concern to her employer because of its effect on the quality of her work and particularly because of its powerful and lasting effect on the pupils. In this area the school physician is comparable to the medical director of an industry who is given broad responsibility for employees' health maintenance and improvement, while actual diagnosis and treatment are usually carried on by the employees' private physician. The school physician assists in developing programs for the pre-employment and periodic medical examination of all school employees. Skillfully done, such examinations not only help to protect children from unsuitable personnel, but also create positive attitudes and interests in the total school health program.

11. *Administrative functions*—These should include skilled supervision of personnel within his department, preparation of budgets and reports, the development of health and medical records, and the statistical analysis of records and results.

12. *Incidental functions and duties*—These are important but need not be detailed. They include cooperation in the development of an effective physical education program on the basis of sound health standards including the health supervision and guidance of athletes; advice to those responsible for the school cafeteria to insure the sanitary safety of food and its nutritional adequacy; assistance with the inservice training of teachers in matters pertaining to health; continued search for and elimination of outmoded procedures and policies which impede the securing of medical care and other remedial work; assistance with the vocational guidance of the physically handicapped.

IV. BROAD EDUCATONAL BACKGROUND OF SCHOOL PHYSICIANS

Both "Directors of School Health Services" and "School Medical Advisers" should above all be good physicians. They should have the M.D. degree from an approved medical school plus an internship in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association.

V. GRADUATE EDUCATION

Note: This section proposes desirable areas of competence for physicians engaged in school health work. The recommendations are made for the guidance of (1) officials responsible for the appointment of school physicians, (2) individuals looking forward to careers in school health work, (3) universities contemplating the offering of special courses in this field.

The professional competence of persons now performing creditable service as school physicians is recognized. It is realized that many have not had the opportunity to acquire the formal education or graduate degrees suggested herein. However, it is to be emphasized that an exception to the requirements for a post-graduate course and the other qualifications listed should be made only if the candidate in addition to years of experience has actually demonstrated unusual ability as a school physician.

A. *Director of School Health Services*

1. *Specific knowledge, skill, and experience*—The scope of modern school health activities requires that the "Director of School Health Services" be either a man or woman with special training both in education and in public health. In addition to being a well trained physician with some of the qualifications listed for the "School Medical Adviser" on page 81, he will need the following special training and experience:

a. Basic principles of public health including

general philosophy of mass health protection, epidemiology, vital statistics, record systems and record keeping, environmental sanitation, health education, public health nursing, and the principles of public health administration.

b. Principles of child growth and development, educational psychology, philosophy and principles of education, health education, education of the handicapped, mental hygiene, and school administration, including organization and administration of school health programs. Ideally, the "Director of School Health Services" should have had two or more years' experience as a "School Medical Adviser." Those who do not have all the suggested preparation in education and in public health should obtain it as soon as possible after appointment. This should be stipulated at the time of appointment.

c. Upon completion of the training listed above, or as part of his preparation, the trainee should have an opportunity for observation and practice in well selected field training centers where outstanding work is being done. This may require a few weeks to three months depending on the amount of previous practical experience.

2. *Personal qualities*—The need for cooperative effort with many diverse groups and individuals emphasizes the importance of personal qualities of leadership, such as understanding of others, ability to select and help develop subordinates, ability to evaluate and improve accepted procedures, adaptability, a friendly but dignified manner, a liking for people and particularly children, and an aptitude for preventive medicine. As important as any other personal quality is the personality and skill that will facilitate cooperative relationships with private practitioners. The field is open to both men and women trained in medicine.

3. *Approximate time required for special training*—One calendar year of specialized study, which includes field work, is needed.

4. *Type of institution best fitted for such training*—It is important, however, that this work be undertaken in a school where his individual needs are carefully assayed and courses offered to fulfill these needs, where his time is well planned, and where there are rich opportunities for professional association and discussion as well as practice and observation in the field. It is essential that there be close association between the school of public health and the school of education. Neither school alone can successfully complete the training of a potential director of school health. The schools of public health accredited by the American Public Health Association,* which have close association with the schools of education, are usually well suited to this type of training in the time suggested.

B. *School Medical Adviser*

The "School Medical Adviser" is not ordinarily a full-time career worker. In recognition of his value to the school health program, however, and the dilemma sometimes confronting school superintendents when local physicians are recommended for school appointments by influential people, the following suggestions are submitted:

Preference should be given to physicians who have had special training and experience in the fields of pediatrics, internal medicine, or child psychiatry. Physicians who, in addition to a sound background of clinical experience in these fields, have had special training and experience in the field of public health, should receive additional consideration for appointment.

Particular attention should be given to personality and to evidence of ability to work cooperatively with teachers, nurses, parents, practicing physicians and dentists, and community health and welfare agencies. Above all, the physician must have an interest in children, a desire to help them, and an understand-

* A list of the institutions accredited by the American Public Health Association for the degrees of doctor of public health and master of public health (diploma of public health in Canada) is published annually in the *American Journal of Public Health*. Reprints of this and of the criteria for accreditation are available.

ing of the basic principles of school health as they relate to both education and public health.

In larger school systems it is assumed that "School Medical Advisers" will be working under the administrative and supervisory direction of a "Director of School Health Services." The training and experience of the "School Medical Adviser" will be augmented by inservice training provided by the director through individual conferences, special studies, group projects, and other supervisory technics.

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THE HERITAGE OF A PIONEER

ONE of the most moving events of the Eightieth Annual Meeting was the Joseph W. Mountin Memorial Session held jointly by the Health Officers, Industrial Hygiene, Medical Care, and Public Health Nursing Sections of the Association, under the chairmanship of Surgeon General Scheele. The four papers presented, the leading articles in this issue of the *Journal*, were masterpieces. There was no duplication; and the speakers wove into their presentations direct quotations from the late Dr. Mountin's own writings with consummate skill. Together, they presented a vivid picture of Dr. Mountin's contributions to the problems of chronic disease, to the regionalization of health services, to the organization of the local health department, and to medical care. In each of these areas of public health he was indeed a pioneer, seeing the vistas of the future and approaching them with complete courage, tempered by wise statesmanship.

Public health has lost one of its great leaders in Joe Mountin; but his heritage remains with us. Some day his many enlightening essays should be collected and published as a whole. Meanwhile this symposium stands as a fitting memorial to a great leader. It is a challenge to all of us to follow where he led.

THE GAP IN OUR HEALTH DEFENSES

AT the depth of the depression of two decades ago, it was estimated that a third of the nation was ill-fed, ill-clothed, and ill-housed. That crisis was overcome. It is still true today—in this most prosperous country of the world—that over one-fourth of the nation is without effective local health protection.

The Committee on Administrative Practice made its basic studies on the need

for local health service 10 years ago and launched its farsighted program for universal coverage by local health units 7 years ago.

In July of 1952, there were 1,209 such local units in operation, serving 1,560 counties and 108,600,000 people. Between 1942 and 1952, there has been only a 10 per cent increase in such units and only a 25 per cent increase in the population served—a somewhat pitiable achievement. Some 40,000,000 Americans, or more than a quarter of the nation, are still without any effective machinery for local health protection. Furthermore, many of the local units now in operation are so inadequately financed that they are unable to perform their functions with any approach to adequacy. A recent questionnaire revealed only 47 units with the optimum budget of $2.00 per capita, and 22 of these units were in one state—Mississippi.

It is true, of course, that in some states such as Connecticut and New York, efficient state health departments are doing their best to fill the void in local and county health machinery. This is, however, only a stopgap procedure. A truly effective health program must have its roots in the immediate locality; it must be tailored to meet local needs; it must be supported by local understanding and participation. Recent studies in Connecticut by W. M. Hiscock have suggested that state and federal demonstrations may actually tend to delay the development of a sense of local responsibility by lulling the community into a false sense of security.

There are at least four points which must be kept in mind if we are to develop really effective local health units for this nation.

1. We must present to the Congress a strong case for continuance and expansion of federal aid for the initiation of local health units to be taken over by the local community as its own ultimate responsibility. "Economy" is not refraining from spending money when the return on an investment is a profitable one. Economy is the "wise management of the household" or the nation. It is false economy in peacetime to leave a quarter of our people without adequate health service. It might well prove fatal in wartime.

2. We must continue on the promising road opened up at the Princeton Conference by enlisting the widest variety of federal, state, and local voluntary agencies in the campaign for health units for the nation. The control of tuberculosis, of heart diseases, of cancer, the care of an aging population, all these depend for their effectiveness on sound local health organization. Civic groups, farm groups, labor groups, educational groups, business groups, all must have their part to play.

3. We must raise our sights as to the minimum size of a local health unit. A unit of 25,000 population is an ineffective unit and an uneconomical unit. The physicians who must staff local health units know this. Of existing units in the 25,000 class, one-fourth are without health officers; of the units with over 100,000 population, only one in 50 is unstaffed. In the opinion of the editor, 100,000 people should be taken as our minimum for effective service.

4. Finally, we must keep in our own minds and instill in the minds of the public, a broad concept of what modern public health service means. It includes sanitation and communicable disease control; but it includes far more than this. It involves study, planning, stimulation, and leadership in all of the various fields of health protection and health promotion, mental as well as physical, and also the alleviation of disease in a concerted program in which the official agencies, the voluntary health agencies, the medical and dental and nursing professions and the social agencies all play a part with the sound mind and the sound body as its goal.

A UNIQUE RESEARCH PROJECT

ADVANCES in the sciences of biology, chemistry, and physics have so added to the technical complexities of medical research that today such research is commonly limited to the laboratories of universities and special institutes staffed by teams of specialists. Research has become so expensive that it depends on subsidies by foundations, by associations interested in specific diseases, and by industry and by government. The one field still largely neglected is that of the epidemiology of disease, particularly of the chronic diseases, as well as the study of human genetics. The reason lies not alone in lack of interest, but also in the fact that clinical material for such studies is difficult to marshall. Hospital and clinic patients do not constitute fair samples of populations that need to be studied. The few investigations that have been undertaken have been promoted largely by public agencies such as the U. S. Public Health Service.

It is very encouraging, therefore, that a labor union has appropriated a substantial sum of money for medical research and has set up an epidemiological study of the incidence of arteriosclerosis among its members. About a year and a half ago the New York Joint Board of the Amalgamated Clothing Workers of America established the Sidney Hillman Health Center to provide outpatient medical service to its members. Its work is described in an article by Dr. M. A. Brand in the present issue of the *Journal*.

The Joint Board, recognizing that Sidney Hillman had rendered great services to his country as well as to his union, wished, in honoring him, to have the Center serve the community as well. It therefore set aside $300,000 as the Sidney Hillman Research Fund, and authorized the establishment of a research unit at the Center. An Advisory Research Council was appointed and was given a free hand. The Council recognized that the situation lent itself to certain epidemiological studies that were difficult to duplicate elsewhere, and after mature consideration set up a project to determine the incidence of arteriosclerosis among the union members, in particular, to determine whether or not ethnic factors were concerned with the incidence of the disease in question. This seemed particularly feasible because Jews and Italians are almost equally represented among the membership of the union. In addition, an attempt is being made to discover whether dietary factors play a role in the development of arteriosclerosis. By examining children and siblings of the probands, the significance of genetic factors is being studied.

The setting up of a clinical staff—physicians, statisticians, nutritionists, and technicians and the equipment of a laboratory were relatively simple routine procedures. The establishment of criteria for the diagnosis of arteriosclerosis was a bit more difficult. Each examination consists of a family and medical history, physical examination, x-rays of chest and abdominal aorta, electrocardiogram, ballistocardiogram and relevant lipid and other blood studies, as well as a dietary history.

As in all such studies, the great task lay in obtaining a representative sample of the union population which numbers 30,000. Since the rolls of the union were made accessible to the research group, the selection of an appropriate sample was relatively simple. But it was another matter to persuade the individuals chosen to come in for examination. Finally, the following device was worked out and has proved satisfactory; to date close to 85 per cent of those picked by the sampling process have offered themselves for examination. The membership was broken down into small groups determined by the shop in which they work and the particular job that they do. Each such unit is under the supervision of a shop chair-

man. The selection of the shops and of the samples within the shops were made under the direction of an expert biostatistician. Through the business manager the shop chairmen were approached, and they in turn were made responsible for persuading the members to cooperate in the study. Without the close and often enthusiastic cooperation of these union officials the study would be impossible. Thus we have the unique situation in which a union not only provides substantial research funds, but actively participates in carrying out the research project itself. It is a "self-study" in the truest sense of the word.

THE AGING PROCESS IN BACTERIAL CULTURES

IT is, of course, a far cry from a colony of bacteria in a culture tube to the mass of associated cells in a human body. Yet, the processes of metabolic activity are very fundamental attributes of protoplasm; and it is not impossible that the relation between these two processes may have some general significance.

More than 12 years ago, Hegarty [1] reported that during the phase of "physiological youth" in a bacterial culture (the period when the multiplication of cells is most rapid) the power of responding to the presence of a new chemical compound in the medium was also at a maximum. Recently, however, Pinsky and Stokes,[2] in a much more extensive study on this point, have obtained precisely opposite results.

Working with a considerable series of test substances, these investigators found that, "in all cases, adaptability steadily decreases during the period of active growth from the high level of the original inoculum and is restored as the cells enter the stationary phase of growth. Thus, adaptation is favored by aging rather than physiological youth."

Obviously, bold assumptions are not usually justified by the event, or they would not be bold. But it is the bold assumptions which are justified by experience and experiment which open up new vistas. Is it possible that—in the human organism—there may also be processes of enzymatic adaptation which are inversely correlated with growth rate? If so, the aging process may have its aspects of compensation.

1. Hegarty, C. P. Physiological Youth as an Important Factor in Adaptive Enzyme Formation. *J. Bact.* 37:145, 1939.
2. Pinsky, M. J., and Stokes, J. L. The Influence of Age on Enzymatic Adaptation in Microorganisms. *J. Bact.* 64:337, 1952.

Clearing House on Public Health Salary Information and Personnel Needs

MEDICAL SCHOOL ENROLLMENT INCREASE

"Facilities for medical education in the United States are at an all-time high" is the appraisal made in the fifty-second annual report on "Medical Education in the United States and Canada" by the Council on Medical Education and Hospitals of the American Medical Association. The total number of students enrolled in medical and basic science schools of the United States and the 1951–1952 freshmen were each more than 3 per cent larger than in the previous year. The report further points out that the 1951–1952 figures for total enrollment and for the freshmen classes are more than 25 per cent larger than the average for the 5 years preceding World War II.

The report gives detailed figures for each year beginning with 1930–1931. In the 20 years between 1930–1931 and 1950–1951 total enrollment increased by 19 per cent, the freshmen classes by 11 per cent. During the same period the population of the United States increased by 23 per cent.

Opposite trends were evident during the two decades of the 20-year period. During the first 10 years total enrollment decreased 3 per cent and size of freshmen classes 10 per cent. During the second period enrollment increased 22 per cent, freshmen classes by 23 per cent, thus increasing faster than the population increase which was 14 per cent in the decade between 1940 and 1950.

The report further points out a drop for the second successive year in students applying for admission to medical schools. Currently there are fewer than three applicants for each available place in the entering class. Although the number of women students declined for the fifth consecutive year, the proportion of men and women applicants accepted is equal. There has been a steady decline in number of women graduates since 1949 when they represented 12 per cent of the total; by 1952 they numbered less than 6 per cent.

There are currently about 27,000 students, more than 6,000 of them in the senior class, who represent the pool from which future public health physicians must be drawn.

PR = PERFORMANCE AND REPORTING

Voltaire's, "The only way to compel men to speak good of us is to *do* good" is the definition of public relations with which the Civil Service Assembly opens its new publication, *Public Relations for Government Employees: An Action Program*, by Eleanor Ruhl. Included are samples of good public relations, a list of training films, a brief public relations bibliography, and a description of a public relations kit available from the Assembly. This is a valuable document for personnel officers not only in official agencies to whom it is primarily addressed but for those in voluntary and private agencies as well. It recommends performance, not ballyhoo. Civil Service Assembly, 1313 E. 60th St., Chicago 37, Ill.; $2.00, reductions on quantity orders.

THE ONE WORLD OF PROBLEMS

"Making a Career in the Health Service More Attractive" is a subhead of the first report of WHO's *Expert Committee on Public Health Administration*, published in November, 1952. It says in part:

The lack of trained personnel is a formidable difficulty which has to be faced by all

health administrators at the present time. Even where staffs with some sort of training are available, their achievements in the field are often disappointing owing to inadequate basic training. . . .

Many of the teachers in medical schools fail to put forward and to transmit to their students a wholesome attitude towards preventive medicine and health administration, which is often treated in a very casual fashion as a minor subject in the cirriculum. . . .

Medical treatment, as it offers almost everywhere relatively high remuneration and more scope for promotion, even to administrative appointments, appears more attractive to young men at the threshold of their careers. . . .

Much thought has to be directed to making the job in the health service more challenging. This can be achieved partly by extending its scope, and partly by giving the officer at the local level more authority and wider discretion. His status depends in large measure upon the way in which he is regarded by those whom he serves, both professional and lay people.

DOCTORS' INCOMES KEEP GOING UP

On the basis of a questionnaire survey, *Medical Economics* concludes that the average net income of a doctor in private practice rose by more than one-third in the four years 1948–1951. His 1951 net income of more than $15,000 puts him "in a better financial position than at any time in the past."

But not all practitioners are equally fortunate. The average net incomes of those practicing in New England are nearly a third less than of those in the Far West, for example. Large cities do not bring the greatest rewards; cities of more than a million population produce the lowest net incomes among any groups of cities; highest incomes are in cities of 50,000 to 100,000 population.

On the average highest incomes are found among those in practice from 10 to 20 years; lowest among those with 30 or more years of experience.

The detailed report is published in *Medical Economics*, December, 1952, Rutherford, N. J.

RECRUITING SOCIAL WORKERS

Seemingly in response to the current demand to help yourself, the National Social Welfare Assembly, through its Committee on Personnel, has prepared "Need Workers? You Can Recruit for the Profession, for Your Community, for Your Agency." This little folder is designed to stimulate local executives into recruitment action. The suggestions for inviting students to visit the agency, giving them volunteer or vacation jobs, planning jobs for women with young children, on the one hand, and older persons with less family responsibility, on the other, are equally relevant for local public health executives.

SANITARY ENGINEERING SCHOLARSHIPS

Six scholarships in sanitary engineering for study at the University of Florida will be offered each year by the Lovetts and Table Supply Food Stores Welfare Association, according to arrangements recently made with the University. Each scholarship will pay $125.00 per semester and may be renewed each year during the four years of undergraduate study. In some cases, scholarships may be awarded to students already in college. High school graduates or college students who have lived in Florida, South Georgia, or the vicinity of Louisville, Ky., 10 years previous to application are eligible. Further information and application blanks from J. M. Chupp, Secretary, Lovetts and Table Supply Food Stores Welfare Association, Drawer B, West Bay Station, Jacksonville, Fla.

NFIP POSTDOCTORAL FELLOWSHIPS

The National Foundation for Infantile Paralysis has made available a limited number of postdoctoral fellowships in public health and preventive medicine. The fellowships are for one or more years at an approved school of public health, with a period of field experience when arranged by the school. Stipends to Fellows, which may cover tuition, maintenance, and an allowance

for books, are based on the individual need of each applicant. The purpose of the fellowships is to prepare physicians to fill the many vacancies existing in public health and preventive medicine, with priority to those who are interested in entering the teaching field.

Eligibility requirements include United States citizenship, sound health, graduation from an approved school of medicine, and completion of at least a one-year internship in an approved hospital. Selection of candidates will be made on a competitive basis by a Clinical Fellowship Committee composed of leaders in the field of medicine and professional education. Further information and application from the Division of Professional Education, the National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y.

PUBLIC HEALTH NURSE CENSUS

Nearly 26,000 nurses are engaged in public health in the United States, 14 per cent of them in New York State and nearly 10 per cent in California. These facts are found in the *Census of Nurses in Public Health Work*, issued during the summer of 1952 by the U. S. Public Health Service. This fifteenth annual census shows a gain of more than 4,000 in the number of public health nurses, or about one-fifth, during the past 5 years. It is estimated, however, that the need is for an increase of from 40 to 60 per cent over the present number.

Nearly half of present-day public health nurses are found in local official agencies, practically the same percentage as 10 years ago. Fifteen years ago, however, only 43 per cent were in such agencies. The per cent employed by local boards of education increased from one-fifth of the total in 1937 to one-fourth in 1952. On the other hand, employment in nonofficial agencies has steadily decreased during the 15 years. In 1937 such agencies employed a third of the public health nurses; by 1952 the per cent had gone to less than one-fifth. This, of course, reflects the process that has been going on by which voluntary agencies such as the Red Cross, life insurance companies, and others have turned over their community nursing services to official agencies once the need and usefulness have been demonstrated.

During the past 10 years, there has been a 15 per cent decrease in the number of counties without any nurses engaged in full-time public health work in rural areas. This decrease has not been continuous, however. During the first 5 years there was an upswing of nearly 40 per cent in such counties, followed by a decrease of nearly the same amount during the latter 5 years.

Of the total nurses on duty nearly 12 per cent were supervisors, of whom 80 per cent had completed one or more years in an approved public health nursing program of study. Only 30 per cent of staff nurses had at least this amount of training. Hawaii with 85 per cent of all the nurses on duty and Oregon with 84 per cent topped the list in percentage of nurses with special public health training. In addition, Alaska, the District of Columbia, and Washington State reported more than a third of all nurses on duty with advanced public health training. On the other hand, 7 states and an outlying possession reported fewer than one-fifth of public health nurses with special training in this field.

Copies of the 1952 count of public health nurses, comprising 15 statistical tables, are available without charge from the U. S. Public Health Service, Washington 25, D. C.

Credit Lines

The Journal cannot furnish copies of items mentioned in Credit Lines. Please send requests to the addresses given.

MIGRANTS IN THE EMPIRE STATE

Sweatshops in the Sun, by the Consumers League of New York, describes the "unparalled conditions of these workers in New York State who harvest the vegetables, fruit, berries and potatoes of the state." Deficiencies in housing, child care, recreation, wages, transportation, and nearly all the factors that make for physical and mental health is painted in word and picture. A recommended 10-point program includes in addition to a central state agency instead of the nine agencies that each pick at a fringe of the problem, more health services, better housing, recreation programs, and more educational work. Consumers League of New York, 112 E. 19th Street. New York 3. 25¢; 10 to 100 copies 15¢; 100 or more copies 10¢.

ADMINISTRATION IN A METROPOLIS

Here is a thoughtful study of the governmental services in complex metropolitan Washington, written by Geddes W. Rutherford, Ph.D., for the Public Administration Service. Most services of urban government such as health and water supply are considered, as well as planning agencies and operations. Methods of integration, coördination, etc., are carefully explored. Although the soundness of operation through interstate compact is recognized and supported, the necessity of various kinds of intermunicipal and interstate coordination is discussed. Students of government in public health administration as well as in other fields will find this treatise useful. Public Administration Service, 1313 E. 60th Street, Chicago 37. $2.50.

HEALTH IN THE ARCTIC

Two recent publications summarize what is currently known about public health in the Arctic as illustrated by Alaska. An *Activities Report* as of June 30, 1951, has been issued by the Arctic Health Research Center of the Public Health Service. Now about four years old, the Center is carrying on a blend of basic and applied research in human health in low temperature areas. Also reprinted at this time is "Public Health Problems in Alaska" by Jack C. Haldeman, M.D., then medical officer in charge, and several members of the Center's staff, which first appeared in *Public Health Reports* of July 20, 1951. The *Activities Report* is presumably available from the Public Health Service, the reprint from the Gov. Ptg. Office, Washington 25, D. C. 15¢.

EMERGENCY MEDICAL PROGRAMS

Medical Aspects of Civil Defense prepared under the auspices of the Council on National Emergency Medical Service of the American Medical Association, brings together in one pamphlet several articles dealing with medical care and its relationship to civil defense as they appeared in recent issues of the *Journal* of the Association. The articles deal with general aspects of planning and responsibility for medical care, and with the medical problems of individual aspects of possible civil defense emergencies, including chemical defense, atomic burn injury, mental health and civil defense, and the nature of air raid casualties, among others. Available from the Council, 535 N. Dearborn Street, Chicago 10, Ill. 25¢; 20¢ for 100 or more.

PLANNING MEDICAL CARE FOR MINERS

A recent conference in West Virginia, reported to be the first of its kind in the United States, considered the problems of medical care in coal mining areas of Kentucky, Pennsylvania, Tennessee, Virginia, and West Virginia. The No. 1 recommendation, "health education of citizens in coal mining areas" was made by the group made up of medical directors of the United Mine Workers of America, state public health officials, and representatives of the American and State Medical Associations. The conference was planned jointly by the UMWA and the AMA Councils on Industrial Health and on Medical Services because "doctors are becoming aware that medical care of the miner is more than claims against the miners welfare fund."

The conference had been preceded by a study made by a four-man AMA survey team at the request of Warren F. Draper, M.D., executive medical officer of the UMW health and welfare fund. Among their findings were that practising doctors are shunning mine camps with the result that miners have to travel long distances for medical and hospital beds. There is a serious shortage of hospital beds. Coal-camp life, employment uncertainties, and daily living habits all contribute to the unfavorable health standards.

The conference emphasized the need for joint efforts by the fund, public health departments, medical societies, and medical schools. In addition to expanded hospital and health center facilities, improved living conditions and professional working conditions are needed to attract public health workers and practising physicians.

SIXTY YEARS OF SANITATION PROGRESS

Sixty Years of Progress in Sanitation 1890–1950, as recounted by Murray P. Horwood, Ph.D., presents in graphic form the miracles that have been performed through the contributions of sanitation. This is the story of public health progress, from the hazards of a filthy milk supply to one of excellent quality; from the danger of malaria and other insect-borne diseases to an almost complete absence of these maladies; from a life expectancy at birth of 42 years to almost 70. Reading the story brings one face to face with such famous contributors to good environmental sanitation as Shattuck, Sedgwick, Fair, and Whipple. Presented on the occasion of the sixtieth anniversary meeting of the Massachusetts Public Health Association, much of the material refers to Massachusetts. Interesting illustrations and illustrative statistical data add to the value of the report, which appeared originally in *Modern Sanitation*, 855 Avenue of the Americas, New York. Reprints available, 32 pp; $1.00.

A SOCIAL WORK NEWS BULLETIN

Social Work News made its appearance in September. A biweekly four-page news letter, it is designed to present in concise form information on new trends in the field, job openings, personnel changes, forthcoming legislation, and analyses of the nation-wide picture in the social work world. Edith C. Olshin is its editor. The address is 1776 Broadway, New York 19. Annual subscription, $3.00.

GUIDE TO HEALTH EDUCATION

Guides in Health Education is the work of a joint committee of the Health and Education Departments in Pinellas County, Florida. This little 40-page pamphlet is designed for use in the first six grades of school. Prepared by teachers and physicians working together, it outlines a six-week course for each of the grades; lists appropriate topics for discussion, suggested activities, and appropriate films, pamphlets and posters obtainable from county or state health department. Health references,

many from their own library, local resources for health materials, health textbooks, and outside sources of free health materials are listed. A fine example of coöperative effort, with a worth-while result! Robert E. Rothermel, M.D., is director of the Pinellas County Health Department, St. Petersburg, Fla. No information as to out-of-county distribution.

TAKING ADVANTAGE OF OPPORTUNITIES

The National Health Council publishes a *Directory of Member Organizations.* The New Jersey State Health Department is publishing the directory information on these agencies serially in the Department's monthly *Public Health News.* Thus, local citizens will have the opportunity to learn about the counterparts of the agencies whose work they know in their communities as well as about the many special aids that can be made available to a community. Other state health bulletins might well follow New Jersey's lead in this matter.

DOCTOR'S MULTIPLE SCLEROSIS MANUALS

The National Multiple Sclerosis Society has prepared a set of manuals outlining a home care program for multiple sclerosis patients employing physical therapy and rehabilitation technics. They are directed to patients and furnished without charge to physicians for distribution to their patients. The main title of each is *A Home Program;* the four subtitles are respectively:

For Independently Ambulatory Patients
For Patients Ambulatory With Aids
For Wheel Chair Patients
For the Care of Bed Patients

The author of each pamphlet is Edward A. Gordon, M.D., director of the Institute for Crippled and Disabled, New York City. The set was prepared with the coöperation of the Institute of Physical Medicine and Rehabilitation of the New York University–Bellevue Medical Center. It was published with the assistance of the Metropolitan Life Insurance Company and a grant in memory of Percy R. Pyne, Jr.

An earlier pamphlet, also by Dr. Gordon, was prepared for and is available to physicians—*Multiple Sclerosis: Application of Rehabilitation Techniques.*

National Multiple Sclerosis Society, 270 Park Ave., New York 17.

INDUSTRIAL HYGIENE FACILITIES

In order to know the available medical services and feeding facilities that might be utilized in case of civil defense needs, a survey of New York State industry was made recently by the Division of Industrial Hygiene and Safety Standards of the State Department of Labor.

Reports from nearly 4,500 establishments employing 100 or more workers, show that physicians and nurses were employed to provide medical services in 950, about 1 in 5. Factors that apparently influence the employment of medical personnel include size of establishment, extent and nature of work hazards, general availability of medical facilities in the community, and basic plant policies. One in 6 of the establishments had on-premise feeding facilities for employees. The larger the establishment, the greater the liklihood of feeding facilities.

Medical Personnel and Employee Feeding Facilities in New York State Establishments Employing 100 or More Workers, October, 1950, Division of Research and Statistics, New York State Department of Labor, 80 Centre St., New York 13.

WORTH ACQUIRING

What We Can Do About the Drug Menace by Albert Deutsch is No. 186 of the Public Affairs Pamphlets. It separates the sense from the nonsense in current discussions of the addiction problem. The author finds it neither a

"national epidemic" nor a problem to be laughed off. His pamphlet helps the individual to see and deal with the problem sanely as it affects his community.

In a foreword, George Stevenson, M.D,. medical director, National Association for Mental Health, says: "Despite population increases, there are still fewer than half the addicts and one-fourth the teen-age addicts than were to be found in the country forty years ago. . . . The great majority of teen-age addicts come from minority groups living in slum areas where life is bleak. These are the deprived people of our population and whether through narcotics or sexual promiscuity they are seeking a human relationship which their home and neighborhood has denied them. The use of narcotics is a symptom of rebellion—against discrimination, futility and frustration."

Public Affairs Pamphlets, 22 E. 38th St., New York 16; 25¢. Reduction on quantity orders.

Health Education Materials is a listing—with emphasis on milk and milk products—of folders, booklets, posters, charts, and visual aids available from the National Dairy Council. The purpose "is to teach the fundamental place of milk and its products in good nutrition." The materials are designed to fit into programs of professional, school, home economics, and consumer groups. 111 North Canal St., Chicago 6, or local dairy council units.

Editing the Nurses' Bulletin is a manual of basic editorial principles for an effective publication. Through case studies, taken from an analysis of 52 current state nursing bulletins, it shows how these principles can be applied to this special type of publication. The manual includes content only; supplements will cover production, layout, mailing, and advertising. The author is Roscoe Ellard, professor of journalism, Graduate School of Journalism, Columbia University; the publisher, the American Nurses' Association, 2 Park Avenue, New York 16; 50¢.

ANNUAL REPORTS

These Things We Did is the 1951 report of the Health Department of Marshall County, Mississippi (the senior partner in the Marshall-Benton County Unit). It has an attractive cover, is simply and inexpensively produced, but both the language and the drawings are imaginative and give a real sense of the department's work "on the farm, in the towns, and in the schools." The wonder is that a county of 25,000 can have a full-time staff of health officer, four nurses, a sanitarian, a health educator, two clerks, and a VD investigator—all for less than $30,000, of which the county meets more than half. The health officer is Rhea L. Wyatt, M.D., who presumably also has a staff in Benton County.

On Guard is the 1951 annual report of Cook County (Ill.) Dept. of Health. It takes its title from the fact that "somebody must stand guard over the health of all citizens in a community." Full-time organized health department work is only 11 years old in suburban Cook County. This short report is extensively illustrated with charts and photographs that illuminate the text. The varied services described cost 59 cents per capita, nearly 60 per cent of which was provided by local funds. John B. Hall, M.D., is the health officer.

Annual Report 1951 is a brief summary of the year's work by the Marion County (Ore.) Health Department. In good format and printing, it tells simply and with illustrative charts what public health means to the citizen. Vernon H. Olsen is the health educator of the Department, 206 Masonic Bldg., Salem, Ore.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Cowdry's Problems of Ageing: Biological and Medical Aspects—*Edited by Albert I. Lansing (3rd. ed.). Baltimore, Md.: Williams and Wilkins,* 1952. 1061 pp. Price, $15.00.

A rather remarkable volume is this third edition of a book which has already gained for itself a wide reputation for excellence in the field of gerontology. Originally published in 1939 under the editorship of Dr. E. V. Cowdry, it epitomizes the best available scientific information. Based upon the contributions of 48 outstanding authorities in the fields of physiology, biology, medicine, and sociology, this third and latest edition brings together in a single volume a vast amount of information in condensed form pertaining to the process of aging.

Each of the 40 chapters in this book constitutes a complete thesis in itself on the subject under consideration. Moreover, the list of pertinent references found at the conclusion of each chapter provides the reader with a veritable storehouse of information should he care to pursue his studies further. The book is nicely illustrated and is replete with interesting charts and graphs. The authors under the able leadership of the editor have done an outstanding job of condensing into a single volume the vast amount of scientific information available on the subject of aging.

While written especially for the student of gerontology, this volume will be found valuable by the practising physician whose clientele is composed of older age groups. He will find herein a reference which is of immediate value from a clinical standpoint in interpreting conditions noted at the bedside.

Especially significant is Section III, "Social and Economic Problems of Ageing." The authors of the four chapters which comprise this section have done an excellent job of portraying the problems faced by society in caring for the aged.

The editor of this volume deserves praise for the skill he has exercised in organizing the material of which this volume is comprised. This book is truly an encyclopedia in terms of its comprehensiveness. The reviewer has no hesitation in recommending it to physicians, biologists, and public health workers whose professional activities require a scientific understanding of the process of aging.

EARL E. KLEINSCHMIDT

Essentials of Public Health—*By William P. Shepard (2nd ed.). Philadelphia, Pa.: Lippincott,* 1952. 581 pp. Price, $6.50.

The second edition of the *Essentials of Public Health* is a worthy successor to the first and will unquestionably increase the popularity of this book, the value of which has already been widely recognized. Its purpose is "to provide a brief text on public health for medical students and practicing physicians." This objective is achieved in a most notable manner in a volume which is concise and at the same time more easily readable than those more ponderous works to which the term "text" is generally applied.

As in the first edition, the author is ably supported by his collaborators. Drs. L. B. Reynolds and Charles E. Smith have covered the important aspects of environmental sanitation. Dr. Smith has also contributed a chapter on communicable disease control. A chapter on statistics by Dr. Rodney R. Beard strips the cloak of mystery from a subject which is apt to be feared by the

uninitiated and presents the material as it really is, a useful tool without which neither practising physician nor health officer can properly evaluate either his own observations or those of others.

The most outstanding feature of this book is the emphasis upon the close relationship which must be maintained between the practising physician and members of the official health team, whether health officer, nurse, or sanitary engineer. A physician can practise good medicine and a health official can ably serve the public without having read his book; but neither can fulfill his responsibilities for individual or community health without applying the principles contained herein.

JOHN P. HUBBARD

Elementary Medical Statistics—*By Donald Mainland. Philadelphia, Pa.: Saunders,* 1952. 327 pp. Price, $5.00.

Professor Mainland has drawn together many of his experiences in teaching statistics and giving advice to medical students and investigators at Dalhousie University and lately at New York University. The present volume draws some material from two earlier works by the same author, *The Treatment of Clinical and Laboratory Data* and *Statistical Methods in Medical Research—Qualitative Statistics*. However, it is a new book and not merely a revision of these earlier volumes. There are numerous examples from all fields of medicine. Many fallacies of reasoning and hints to avoid them are illustrated. There are several excellent sections on the design of experiments.

The first seven chapters constitute an undergraduate section. Some of the titles are provocative, such as, "On Looking at Data," and, "Statistical Ideas in Clinical Medicine." The author gives many examples and methods of public health statistics, but does not purport to cover this field in detail.

The discussion of sampling variation puts more emphasis on confidence limits than on significance tests. Confidence limits and significance tests for proportions are largely handled by reference to a table (or nomogram); for means, by reference to a table of t. Chi square with Yates's correction is recommended for the fourfold table. Very little space is devoted to the usual standard error technics. While the emphasis of the author on small sample technics is sound theoretically, this reviewer does not feel that it is always the best way of presenting some of the statistical concepts to medical students and investigators.

The eighth and final chapter gives "Some Further Hints for Investigators," mentioning briefly such items as Poisson, analysis of variance, transformations, exact probabilities for fourfold tables.

This is a book which can be highly recommended to anyone interested in the role of statistical reasoning in medicine.

JOHN W. FERTIG

Transactions of the Conference on Morale—and the Prevention and Control of Panic—*New York: New York Academy of Medicine and Josiah Macy, Jr. Foundation,* 1952. 75 pp.

"It required two cataclysmic wars to fix man's attention upon the dynamics of morale and panic." Although "panic" has been recognized since ancient time, "morale" was not accepted until much later. Neither subject received any critical analysis until recently.

The tragic consequences of "panic" are recorded frequently in the pages of history. The power inherent in morale—the "die for dear old Rutgers" spirit on the football field, the "nuts" of the Bastogne Forests, and the stolid composure of the oft-bombed Londoner—is also there, but it has not been as fully recognized.

It should be obvious that an understanding of panic, its causes and prevention, could be turned to good advan-

tage in any emergency situation. Likewise, a better knowledge of the factors that contribute to good morale, and poor, could be applied to advantage both during emergency and normal times.

The New York Academy of Medicine and the Josiah Macy, Jr. Foundation have jointly sponsored a symposium to analyze what we know about panic and morale. Psychiatrists, psychologists, editors and publishers, and physicians were the conferees. Their purpose was to analyze the history of panic and morale and apply what they found to the fundamental social and political problems confronting the world today. This volume constitutes the transactions of that conference.

Copies are available free of charge from Iago Galdston, M.D., New York Academy of Medicine, 2 E. 103 St., New York, N. Y. FRANCIS B. ELDER

The Healthy Village, an Experiment in Visual Education in West China—*UNESCO. New York: Columbia University Press,* 1951. 119 pp. Price, $.50.

This interesting and practical little monograph describes a one-year experiment in producing visual aids for use in health teaching with a partly illiterate rural population. The project was carried out by UNESCO in West China with the coöperation of the Mass Education Movement, and this report is a record of the difficulties and failures as well as of the positive accomplishments.

In addition to describing the planning, organization, and execution of the project, the monograph is valuable for its comparative evaluation of the various media produced. Especially noteworthy is the section dealing with direct artwork on filmstrips, a new and promising field for rural educators.

The recommendations, methods, technics, and analyses in this report are applicable to many other fields than health and, in spite of a few obvious weaknesses, it is recommended to anyone interested in the use of visual aids for rural areas. HOWARD W. LUNDY

Narcotics U. S. A.—*Edited by Paul B. Weston. New York: Greenberg,* 1952. 319 pp. Price, $4.00.

Here is a book that should be read by everyone concerned with the health and welfare of youth in the United States. Written by nine outstanding physicians, educators, social workers, and law-enforcement officials, this text attacks the problem of narcotics addiction from a purely analytical angle in a clear, concise, and effective style of writing. A total of 19 chapters comprise the contents of the text.

The book gives a comprehensive description of existing conditions with respect to the illicit traffic in and use of drugs in the United States. It also seeks to acquaint the reader with existing control measures available for the suppression of this menace to our youth. Revealed in all its startling details are the inadequacies of our present law-enforcement agencies in dealing with this problem. Lack of uniform legislation is strikingly apparent.

Most important, from the standpoint of the reader, are the concluding chapters which deal with control of the narcotics problems. Herein one finds the authors stressing the importance of federal, state, and local coöperation, in regard to law-enforcement, legislation, education, medical care, research, and rehabilitation. The need for narcotics education in our public schools is imperative, as are stronger community programs, such as have already been initiated in Los Angeles and other large coastal cities.

EARL E. KLEINSCHMIDT

Chemotherapy of Tuberculosis—*Transactions of the 11th Conference, January 17–20, 1952. Washington,*

D. C.: Veterans Administration Area Office, Central Office, 1952. 400 pp.

This is an exceedingly comprehensive review of a Conference held in January, 1952, under the auspices of the Veterans Administration, attended by 250 persons who heard 53 papers on highly technical aspects of the treatment of tuberculosis. The physician well oriented in the treatment of tuberculosis as it was practiced 5 or 10 years ago will be startled to see the significant changes which have taken place as they are reflected in these studies. He will find an excellent opportunity to refresh his understanding of current day practice.

This Conference took place just one month before the announcement of the isonicotinic acid drugs and is concerned entirely with the treatment of tuberculosis by other methods, some of them well established and some not.

As has been pointed out before with reference to similar conferences sponsored by the Veterans Administration, it is encouraging to find a public medical agency like the VA so obviously concerned with research and with raising the level of practice in public medicine. The volume therefore has usefulness to public health workers because of what it teaches about methods for raising the level of practice as well as for its technical information.

REGINALD M. ATWATER

Biochemical Studies of Bacterial Viruses—*By E. A. Evans, Jr. Chicago, Ill.: The University of Chicago Press*, 1952. 68 pp. Price, $2.75.

This book is based on three lectures delivered by the author on the subject of bacterial viruses. It represents a lucid summary of some current studies on the biochemistry of bacterial viruses within their host cells. Particular emphasis is given to the extensive work with isotopes carried out in the author's laboratories. The text, although written with clarity and substantiated by numerous tables and figures, is highly technical and will be most appreciated by scientists in allied fields to whom it is actually directed.

The first lecture on the nature of the virus particle describes the physical and chemical properties of the "chosen" seven viruses (T_1 to T_7) infectious for *Escherichia coli* strain B. The second lecture discusses the origin of viral components, with emphasis on the nucleic acids. The third lecture on the mechanism of virus reproduction is opened by a motto of admirable frankness quoting Lewis Carroll: "What do you know about this business?" the King said to Alice. "Nothing," said Alice. "Nothing whatever?" persisted the King. "Nothing whatever," said Alice. "That's very important," the King said.

Nonetheless, the author proceeds with his lecture and reveals some of the recent advances. Indeed, so rapid is the progress in this field that some of the discussion (on photoreactivation of irradiated viruses) is already out of date.

In the opinion of the reviewer this well written book will prove of great value to investigators of animal viruses who are interested in fundamental research. Numerous analogies in the behavior pattern of animal and bacterial viruses have already been discovered. Bacterial viruses can be studied with greater ease and accuracy than animal virus. Some of these studies have become admirable models for the design of experiments on the relationship of viruses to their animal host cells.

EFRAIM RACKER

Infant and Maternal Care in New York City. A Study of Hospital Facilities—*By E. H. L. Corwin, General Director of Study. New York: Columbia University Press*, 1952. 188 pp. Price $3.50.

This report is the first part of an intensive study of neonatal mortality sponsored by the Committee on Public

Health Relations of the New York Academy of Medicine and under the direction of the Subcommittee on Neonatal Mortality. The New York City Department of Health has actively assisted the study. The report is a concise statistical and graphic presentation of the salient facts concerning the hospital facilities, policies, and personnel.

The infant mortality rate of New York City is lower than comparable rates in any cities of over one million in the United States. Serious weaknesses were, however, found. Variations in neonatal mortality rate ranged from 4.6 to 38.8 among the 104 maternity services studied. Lack of essential equipment, such as heated cribs in the delivery unit or sinks in the nursery, were found. The procedures for follow-up of antepartum cases were considered adequate in 17 per cent of municipal hospitals and 47 per cent of the voluntary services.

This careful study will be useful to other cities in its demonstration of method. An appendix provides an outline of an inventory of maternal and infant care. The report provides data on the significance and validity of many of the items. ROSCOE P. KANDLE

Observations on the Early Public Health Movement in Scotland—*By J. H. F. Brotherston (London School of Hygiene and Tropical Medicine Memoir No. 8). London: H. K. Lewis,* 1952. 119 pp. Price, 21 / net.

This monograph is a significant and interesting contribution to the history of public health. Its aim is to provide a better understanding of the early public health movement in Scotland and to show the differences in development between England and Scotland. In part, this study covers the same ground as Professor Ferguson's recent book, *The Dawn of Scottish Social Welfare.* Dr. Brotherston's principal concern, however, is the history of public health.

It is well known that the eighteenth century was a period of material progress and increasing prosperity. This economic advance continued into the nineteenth century, but it was not reflected in the condition of the great mass of the population. In fact, by the third decade of the nineteenth century, it was evident that the standard of living of the urban population had actually deteriorated. Dr. Brotherston believes that the early public health movement in Scotland must be understood within this framework.

The study begins by examining the increase of population during the eighteenth century to determine whether there actually was any improvement in the welfare of the people. Tracing the late emergence of Scotland from a primitive agriculture and social organization, the author shows that the improvements of the eighteenth century were mainly in the rural population, where the level of nutrition was raised. This was not true of the towns, however, of which the special problems remained untouched. As industry grew and population increased, gross overcrowding and squalor became inevitable. It was to the urgent health and welfare needs of the poor urban masses that attention was eventually directed. Thus, as in England, the public health movement emerged out of larger social developments, but while the English solution was based on the control of communicable diseases through sanitary reform, Scottish efforts were directed toward relief of destitution and improvement in standards of living. Only later did sanitary reform in the narrower sense come to the fore. This is illustrated also by the failure to extend the provisions of the Public Health Act of 1848 to Scotland.

One can recommend this book to all public health workers who are interested in the development of their special field. A copy should certainly be available in the library of every school of public

health. Furthermore, it will serve a useful purpose as supplementary reading in epidemiology courses. The volume is well printed and has an index.

GEORGE ROSEN

Health Resources in the United States: Personnel, Facilities and Services—*By A. W. Bachman and Associates. Washington, D. C.: Brookings Institution.* 1952. 331 pp. Price, $5.00.

The title of this book is highly misleading. It does not deal with "Health Resources" in any comprehensive sense of the word, but merely with "Resources for Medical Care." It contains summaries of familiar source material on mortality rates and morbidity incidence, on medical, dental, nursing and auxiliary personnel, on hospital and clinic facilities and on health services in industry (this latter section being a valuable summary of data not easily to be found elsewhere).

There are rather brief and very inadequate references to sanitation and health education, but no consideration—except in the most incidental fashion—of the federal, state or local health services, which, after all, may scarcely be ignored as "Health Facilities." While certain public health statistics are necessarily cited, the fact that the index contains under "Health" only references to the "Health Insurance Plan of Greater New York" and "Health Service in Industry"; under "Public Health" only to "Public Health Educators," and "Public Health Service, beneficiaries of"; and that the words "City," "State," and "United States" do not appear as primary items in the index at all, even though these agencies provide our most basic "Health Services," illustrates the extremely restricted viewpoint of the compilers.

C.-E. A. WINSLOW

Guidance in a Rural Community—*By Amber Arthum Warburton, Executive Secretary of the Alliance for Guidance of Rural Youth. Selected as the 1952 Yearbook of the Department of Rural Education of the National Education Association (Washington, D. C.).* 176 pp. Price, $2.00.

This is essentially a case report on a coöperative community venture in the improvement of rural living. It would be useful to health workers who are interested in the development of community resources in any problem, and in the encouragement of leadership in small communities.

A South Carolina school district, Green Sea, was selected by the State Department of Public Instruction to serve as a pilot study-demonstration. The problem was "how to get children to school and hold them there long enough to help each individual discover and develop his potentialities"—a problem not unlike those confronting the health professions in their attempts to secure a wider use of health services.

The report is well organized. It considers the problem, the approaches, what was done, who was involved, what the follow-up work seems to be. Health is considered as basic for effective guidance and receives thorough treatment in the discussions of community groups.

Emphasis throughout remains on the problems of youth; youths were included in community discussions and in action. Are there, perhaps, similar case reports on community projects in which the youth of the community have been invited by health officials to discuss community needs in health as they see them? The comparative data would prove enlightening.

LOUISA ESKRIDGE HAAS

Problems of Fetal and Neonatal Mortality—*A series of lectures given under the auspices of the Medical Society of the County of New York. Albany, N. Y.: New York State Department of Health,* 1952. 61 pp. Free.

This pamphlet brings together the

best and most recent information on four essential aspects of the problem of fetal and neonatal mortality, namely, stillbirths and deaths in the newborn as seen by the medical examiner, feeding the prematurely born infant, how the altered physiology of the newborn contributes to the neonatal death rate, and the importance of blood studies in reducing infant mortality. These four articles, prepared by such outstanding physicians as Drs. Jacob Werne, Samuel Z. Levine, Margaret Dann, Clement Smith, Philip Levine, and Peter Vogel, discuss each question broadly, present the facts informally and realistically, and suggest concrete and practical conclusions.

This brochure is the first of what is hoped will be an annual publication of the proceedings of the Special Committee on Infant Mortality of the Medical Society of the County of New York. It has been coöperatively sponsored and distributed by this Society, the New York State Department of Health, the New York City Department of Health, and the Medical Society of the State of New York for the expressed purpose of making this excellent material available to the largest possible number of physicians whose practices embrace obstetrics and pediatrics.

ELINOR F. DOWNS

'Twixt the Cup and the Lip—*By Margaret Cussler and Mary L. deGive. New York: Twayne Publishers,* 1952. 262 pp. Price, $3.95.

This is the report of a study which indicates the psychological and sociocultural factors affecting food habits. The authors, who are sociologists, studied three types of rural southern communities: (1) a one-crop economy in a tobacco growing area in North Carolina; (2) a live-at-home economy with diversified farming in South Carolina; and (3) a prospering cotton economy, with long-term tenants in Georgia.

Chapter headings include: Theories of Food Ideas and Attitudes, The Transmission of Foodways, Foods Which Seem Emotion Centered, and Implications for Food Policy.

The appendix includes the outline used by the authors in their intensive interviewing with an example of material secured by such an interview.

The material, while helpful to all persons concerned with health education, will be especially valuable to workers in the field of health education and public health nutrition in the southern states.

ALICE H. SMITH

Microbiology of Water and Sewage—*By P. L. Gainey and Thomas H. Lord. New York: Prentice-Hall,* 1952. 430 pp. Price, $5.90.

The title of this book, parts of which were previously published as *Microbiology of Water and Sewage for Engineering Students,* does not indicate the wide field covered by the text. Beginning with an adequate section of 80 pages devoted to elementary general microbiology, its next 200 pages are concerned principally with plankton and control of plankton problems (4 chapters), water bacteriology, including chapters on Chemical Tests for Pollution, Locating the Source of Pollution and Self Purification of Waters (7 chapters), filtration and chlorination of water and their effect on the incidence of infectious disease, and a brief discussion of rural and miscellaneous waters (4 chapters). Then follows a chapter on water softening. The subject of sewage disposal is covered in some 90 pages (8 chapters), including a final chapter on industrial wastes.

The treatment of these various topics is generally excellent. The fundamental principles of the methods of examination and of water and sewage purification are always emphasized; and the examples of accomplishment in practice, although not very numerous, are suffi-

cient for an introductory study of the subject.

The broad field covered by this book, including frequent digressions into the chemistry, epidemiology, and engineering of water supply and sewage disposal, the orderly treatment of each chapter which greatly facilitates the presentation of the subject matter, and the readable style of the authors should make this volume a popular introduction to the study of microbiology of water and sewage, and of treatment of water and sewage. M. H. MCCRADY

Zinsser's Textbook of Bacteriology—*By David T. Smith and Norman F. Conant, et al. (10th ed.). New York: Appleton-Century-Crofts*, 1952. 988 pp. Price, $11.00.

Forty-two years have now elapsed since the first edition of this excellent text, the last revised four years ago by the present authors. Throughout the series there has been emphasized "the importance of a basic approach which would include not only the biologic characteristics of the organisms but the reactions of the living tissues to the bacteria and their products." As the authors point out, this approach has made the volume of equal value to the bacteriologist and to the student of public health and clinical medicine. Again the authors desire "to keep inviolate the basic biologic approach to bacteriology and, at the same time, to emphasize the public health significance and the practical clinical importance of certain of the biologic characteristics of the organisms."

This 10th edition represents an extensive revision throughout. The increasing importance of the viruses is reflected in higher proportional emphasis. Included are the reactions of each organism to the new antibiotics and frequently to the administration of ACTH and cortisone. The public health aspects of each disease are systematically emphasized. The volume is well illustrated, 132 new cuts being used in this edition. The references are commendably up to date.

Again it can be said, as Dr. Pearl Kendrick said about the 9th edition, that teachers, students, and workers who have awaited this revision will not be disappointed. REGINALD M. ATWATER

Proceedings—Laboratory Design for Handling Radioactive Materials—*American Institute of Architects and the Atomic Energy Commission. November 27–28, 1952. Washington, D. C.: Building Research Advisory Board. National Research Council*, 1952. 140 pp. Price, $4.50.

This book is an excellent summary of the various aspects of laboratory design written from the standpoint of architects and engineers. The terminology is simple and well presented and the various articles are well illustrated.

Five main sections cover various aspects of laboratory design. The descriptive titles of each section can best convey their contents: (1) Architectural Introduction to Radiochemical-Laboratory Layout, (2) Air Supply and Exhaust in Laboratories Handling Radioactive Materials, (3) Control and Shielding of Isotopes in Radioactive Laboratories, (4) Surfaces and Finishes for Radioactive Laboratories, (5) Disposal of Radioactive Wastes.

This book should prove useful to public health engineers and administrators faced with the construction or the control of operation of laboratories handling radioactive materials.

ROLF ELIASSEN

Careers for Nurses—*By Dorothy Deming (2nd ed.). New York: McGraw Hill*, 1952. 351 pp. Price, $4.50.

This volume brings up to date and deepens the content of the first edition. Designed primarily for nursing students and their counselors, the author presents

in an informal and very readable style the salient facts about a great variety of fields in nursing. For each type of nursing position the reader is given information about the field of work as a whole, the personal and professional requirements it demands and the opportunities it offers. This is followed by an "on the job" description by a nurse currently engaged in that field of nursing practice which is vital and informative.

One chapter offers practical advice to the nurse planning her professional career, pointing out the satisfactions and demands of particular fields, the importance of sound, well supervised beginning experience, and the procedure involved in applying for a position. Sources of employment are included and each chapter has a comprehensive bibliography.

This book should be a valuable source of reference for nurses and their counselors. The "on the job" descriptions could also provide an excellent orientation for physicians and other allied professional workers who would like an orientation to the nurse's work.

RUTH B. FREEMAN

Family Life Education in School and Community—*By Elizabeth McHose. New York: Bureau of Publications, Teachers College, Columbia University*, 1952. 182 pp. Price, $3.50.

From the appearance of this book one would hardly suspect that it is the newest addition to the long list of contributions on the universal and troublesome problem which more than two generations have been discussing under the title "sex education." This book is in fact an attempt to implement the principles and recommendations that have emerged from decades of controversy, experiment, and blunder. It is a *How To* book. Its distinctive contribution lies in the story magazine style: situations are described in concrete, narrative form, with a name for every person and complete with dialogue.

The first chapter, "A Community Affair," shows that enlightenment and orientation regarding sex are needed by all children, from kindergarten to high school and college age. Chapter II, "Approaches to Programs" occupies more than half the book and spells out what every person concerned says on each occasion; this is likely to be for many parents, teachers, and community workers the most helpful part of the book.

The remainder of the book deals with specific difficulties and obstacles and with some ways of meeting them. The author examines the means employed and ways of measuring or evaluating the results.

This presentation will be very helpful to all who are concerned with education for home and family life, and their number is steadily increasing both in the professional and lay fields.

One might question the journalistic narrative style, which is quite appropriate in the first part of the book when recording statements from children, but when used for adult conversations becomes rather long-winded and stilted.

A shortcoming that must be registered is the fact that, although the author bases this book on extensive study of the literature and accepts the principles that have been developed over the years, her bibliography contains only three references (out of 52) that are older than 1940. SIDONIE M. GRUENBERG

The Family Problems Handbook—*By Arnold W. Holmes, New York: Frederick Fell*, 1952. 191 pp. Price, $3.50 Cloth; $2.00 Paper-bound.

This book was written for people "who are living with troubles they find impossible to solve." The purpose of the book is to indicate available sources of help in knowing "what to do, where to go, to whom to apply for rem-

edy of special problems." Public and private agencies, federal and national, 540 in all, are listed with their functions.

Contents of the book include brief presentations of 63 subjects, from courtship to old age. Included also are several sections on various diseases and the social problems they present to the individual. In many sections references to reading are included. The author attempts to suggest ways of meeting many of the problems discussed; this is done in a simple, direct way and the points of view presented are in general sound but superficial.

For physicians and social workers, this book offers little in relation to the theories presented or the material included. Its use would be limited primarily to the bibliography and to the listing of agencies. However, the latter are usually national or federal agencies to which one might turn for further information and do not provide data which can be imediately utilized at the local level.

The book attempts to encompass too superficially too many subjects and, as a result, provides little information of additional help to physicians, social workers, or the lay public.

ELIZABETH P. RICE

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ANALYSE BACTERIOLOGIQUE DES EAUX DE CONSOMMATION 1952. ANALYSE PHYSICO-CHIMIQUE DES EAUX DE CONSOMMATION 1951. GUIDE DE L'AIDE BIOLOGISTE. Paris, France: Docteur G. Sirjean, 19 rue Erlanger.

ATLAS OF SPATIAL VECTOR ELECTROCARDIOGRAPHY. J. Willis Hurst and Grattan G. Woodson Jr., New York: Blakiston, 1952. 214 pp. Price, $6.00.

BACTERIAL AND MYCOTIC INFECTIONS OF MAN Edited by Rene J. Dubos (2nd ed.). Philadelphia, Pa.: Lippincott, 1952. 886 pp. Price, $7.50.

BLOOD CLOTTING AND ALLIED PROBLEMS. TRANSACTIONS OF THE FIFTH CONFERENCE JANUARY 21–22, 1952. Edited by Joseph E. Flynn. New York: Josiah Macy, Jr. Foundation, 1952. 368 pp. Price, $4.95.

BLUEPRINT FOR HEALTH. AUDITS AND PLANS FOR PROGRAMS IN EIGHTEEN AREAS OF HEALTH BY THE CITIZENS OF HOUSTON AND HARRIS COUNTY. Houston, Tex.: Health Council of the Community Council, 1952. 92 pp. Price, $1.25.

CANCER. NEW APPROACHES NEW HOPE. Boris Sokoloff. New York: Devin-Adair, 1952. 243 pp. Price, $3.75.

CHEMISTRY OF FOODS AND NUTRITION. Henry C. Sherman (8th ed.). New York: Macmillan, 1952. 721 pp. Price, $6.00.

CHILD PSYCHOTHERAPY. S. R. Slavson. New York: Columbia University Press, 1952. 332 pp. Price, $4.50.

CONFIDENTIALITY OF PUBLIC ASSISTANCE RECORDS. Margaret Greenfield. Berkeley, Calif.: University of California, Bureau of Public Administration, 1952. 50 pp. Price, $1.25.

CORPORATION GIVING. F. Emerson Andrews. New York: Russell Sage Foundation, 1952. 347 pp. Price, $4.50.

COURTSHIP AND LOVE. William S. Sadler. New York: Macmillan, 1952. 209 pp. Price, $3.50.

DENTAL CARIES, SURVEY OF THE LITERATURE ON. Prepared for the Food and Nutrition Board, National Research Council under the supervision of the Committee on Dental Health. P. C. Jeans, chairman. Washington, D. C.: Publications Office, National Research Council, 1952. 567 pp. Price, $3.00.

DENTAL SCHOOLS, FINANCIAL STATUS AND NEEDS OF. Public Health Service Publication No. 200. Washington, D. C.: Gov. Ptg. Office, 1952. 83 pp. Price, $.25.

DISTRIBUTION OF HEALTH SERVICES IN THE STRUCTURE OF STATE GOVERNMENT. Part II. Joseph W. Mountin, Evelyn Flook, and Edward E. Minty. Washington, D. C.: Superintendent of Documents, 1952. 64 pp. Price, $.35.

EMOTIONALLY DISTURBED CHILDREN, RESI-

DENTAL TREATMENT OF. Joseph H. Reid and Helen R. Hagan. New York: Child Welfare League of America, 1952. 311 pp. Price, $3.50.

EVOLUTION AND HUMAN DESTINY. Fred Kohler. New York: Philosophical Library, 1952. 120 pp. Price, $2.75.

EXPERT COMMITTEE ON TRACHOMA. FIRST REPORT. WHO Technical Report Series No. 59. New York: Columbia University Press, 1952. 24 pp. Price, $.15.

GROWTH AND DEVELOPMENT OF THE NEGRO IN DENTISTRY IN THE UNITED STATES. Clifton O. Dummett. Charlottesville, Va.: National Dental Association, 1952. 124 pp. Price, $5.00.

HALF CENTURY'S PROGRESS AGAINST TUBERCULOSIS IN NEW YORK CITY 1900–1950. A. Godias, J. Drolet, and Anthony M. Lowell. New York: New York Tuberculosis and Health Association, 1952.

HANDBOOK OF DIET THERAPY. Dorothea Turner (rev. ed.). Chicago, Ill.: University of Chicago Press, 1952. 138 pp. Price, $3.50.

HUMAN PROBLEMS IN TECHNOLOGICAL CHANGE. Edited by Edward H. Spicer. New York: Russell Sage Foundation, 1952. 296 pp. Price, $4.00.

MALARIA. BASIC PRINCIPLES BRIEFLY STATED. Paul F. Russell. Springfield, Ill.: Thomas, 1952. 210 pp. Price, $7.75.

MANUAL FOR THE OPERATION OF CEREBRAL PALSY SCHOOL UNITS IN NEW YORK CITY. Bureau of Handicapped Children. New York: City Department of Health, 1952. 24 pp.

MANUAL OF APPLIED NUTRITION. J. C. Carlson. Baltimore, Md.: Johns Hopkins Press, 1952. 96 pp. Price, $2.50.

MEDICAL MYCOLOGY. AN INTRODUCTION TO ITS PROBLEMS. G. C. Ainsworth. New York: Pitman, 1952. 105 pp. Price, $2.75.

METABOLIC INTERRELATIONS. TRANSACTIONS OF THE FOURTH CONFERENCE JANUARY 7 AND 8, 1952. New York: Josiah Macy, Jr. Foundation, 1952. 262 pp. Price, $4.50.

MICROBIOLOGY, LABORATORY MANUAL FOR. Catherine Jones Witton. New York: McGraw-Hill, 1952. 76 pp. Price, $2.00.

MORBUS ALZHEIMER AND MORBUS PICK. A GENETIC, CLINICAL AND PATHO-ANATOMICAL STUDY. Torsten Sjogren, Hakon Sjogren, and Ake G. H. Lindgren. Copenhagen, Denmark: Ejnar Munksgaard, 1952. 152 pp. Price, 25 Swedish crowns.

MOUNT SINAI HOSPITAL OF NEW YORK 1852–1952. Joseph Hirsh and Beka Doherty. New York: Random House, 1952. 364 pp. Price, $5.00.

OPIATE ADDICTION. Abraham Wikler. Springfield, Ill.: Thomas, 1952. 72 pp. Price, $3.00.

ORGANIZED HEALTH SERVICES IN A COUNTY OF THE UNITED STATES. Milton I. Roemer and Ethel A. Wilson. Public Health Service Publication No. 197. Washington, D. C.: Gov. Ptg. Office, 1952. 91 pp. Price, $.45.

PERSONALITY AND SEX CONFLICTS. H. H. Husted. New York: McBride, 1952. 265 pp. Price, $3.95.

PSYCHOANALYTIC STUDY OF THE CHILD. Edited by Ruth S. Eissler, *et al.* New York: International Universities Press, 1952. 448 pp. Price, $7.50.

PUBLIC HEALTH LAW IN QUESTION AND ANSWER. J. Greenwood Wilson and J. Hindle Fisher (5th ed.). London: H. K. Lewis, 1952. 334 pp. Price, 27s 6d, net.

PUBLIC HEALTH LECTURES. Karl Evang, John E. Gordon, and R. G. Tyler. Medical Teaching Mission to Israel, WHO, and the Unitarian Service Committee, Inc. Boston, Mass.: Unitarian Service Committee, 1952. 122 pp. Price, $1.00.

SMALL PLANT HEALTH AND MEDICAL PROGRAMS. Margaret C. Klem and Margaret F. McKiever. Public Health Service Publication No. 215. Washington, D. C.: Gov. Ptg. Office, 1952. 213 pp. Price, $.50.

SMALL SEWAGE DISPOSAL SYSTEMS (WITH SPECIAL REFERENCE TO THE TROPICS). O. J. S. Macdonald. London: H. K. Lewis, 1952. 294 pp. Price, 20s, net.

STORY OF CANCER FOR HIGH SCHOOLS. Prepared by the Cancer Control Committee, Michigan State Medical Society. Lansing, Mich.: Michigan State Medical Society, 1952. 68 pp.

STUDY OF CHILD HEALTH SERVICES AND FACILITIES IN PENNSYLVANIA. James Woodrow Clark and E. Douglass Burdick. Philadelphia, Pa.: State Department of Health, Bureau of Maternal and Child Health, 1952. 57 pp.

TUBERCULOSIS. A HEALTH SERIES BOOK. Saul Solomon. New York: Coward-McCann, 1952. 310 pp. Price, $3.50.

VITAMIN E, ANNOTATED BIBLIOGRAPHY 1950 AND 1951. Vol. II. New York: National Vitamin Foundation, 1952. 106 pp. Price, $2.00.

YOU AND TUBERCULOSIS. James E. Perkins and Floyd M. Feldman. New York: Knopf, 1952. 176 pp. Price, $2.50.

YOUR COMMUNITY'S HEALTH (Revision of COMMUNITY HYGIENE) Dean Franklin Smiley and Adrian Gordon Gould. New York: Macmillan, 1952. 454 pp. Price, $5.50.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Even as We—In Merrie (?) England, too, fluorine is found to be good for the teeth. Concludes this M.O.H., "Slough (compared to a town with fluorine-free water) would thus appear fortunate in possessing a water supply which contains enough fluorine . . . the town has no need, either, to enter into the controversy which is raging upon the ethics and economies of adding fluorine to the drinking water artificially."

ANON. Dental Caries and the Fluorine Content of Drinking Water. *M. Officer.* 88, 18:209 (Nov. 1), 1952.

Lab Hazards — Many laboratory workers catch the diseases caused by the infectious materials they handle in the course of their day's work. Usually the case is mild, and the source of infection is unidentified. Sometimes they die. Hazardous laboratory practices are discussed here to suggest safer procedures.

ANDERSON, R. E., *et al.* Potential Infection Hazards of Common Bacteriological Techniques. *J. Bact.* 64, 4:473 (Oct.), 1952.

Familial Susceptibility — Households including school children were visited every four weeks (for three years) and were asked about attacks of acute respiratory diseases. Rheumatic fever was included in the survey. A significantly higher proportion of the members of "rheumatic families" had more attacks of streptococcal illness than did others—suggesting a family susceptibility to the streptococcus.

COULTER, J. E. Rheumatic Fever and Streptococcal Illness in Two Communities in New York State. *Milbank Mem. Fund Quart.* 30, 4:341 (Oct.), 1952.

Tasteless—No one can taste sodium fluoride when added to drinking water at 1 ppm. This is the practical finding of a scientific study in which none of the possible "ionic effects," etc. were neglected, but which you can ignore when answering your chronic objectors.

COX, S. J., and NATHANS, J. W. A Study of the Taste of Fluoridated Water. *J.A.W.W.A.* 44, 10:940 (Oct.), 1952.

Changes Needed—Reduced to fewest possible words, here is the thesis of modern-day VD control: there is less venereal disease; treatment is on an outpatient basis; foci of infection are scattered and shifting; case finding requires precision and flexibility. Good example follows.

CUTLER, J. C., *et al.* Venereal Disease Now —and Looking into the Future (and) A Report of an Area Epidemic of Syphilis. *Pub. Health Nursing* 44, 11:613 (Nov.), 1952.

Familiar Story—British health officers are never politically appointed. They cannot be tossed out of office. They have a greater range of duties than their American counterparts. They take their pension rights with them as they move up the ladder. But still there is a shortage of candidates mostly because rates of pay are less than those for other physicians.

DALEY, A. The Local Public Health Officer in Great Britain Today. *Pub. Health Rep.* 67, 11:1096 (Nov.), 1952.

Little To Be Proud of—Food poisoning outbreaks from all the usual fecal organisms—except the dysentery bacillus—continued on in their grisly way. The record for 1951 was little better than those of the last 15 years.

Milk offended less frequently as the guilty vehicle, however.

DAUER, C. C. Food and Water Borne Disease Outbreaks. *Pub. Health Rep.* 67, 11:1089 (Nov.), 1952.

More About That Weaker Sex—Among the Baltimore families visited, disabling attacks upon chronic disease cases were more frequent among males than females. This was true of the permanently disabled as well. The five most prevalent chronic conditions were: arthritis, heart disease, hypertension, psychoneuroses, and rheumatic fever, in that order.

DOWNES, J., and KELLER, M. The Risk of Disability for Persons with Chronic Disease. *Milbank Mem. Fund Quart.* 30, 4:311 (Oct.), 1952.

Testimony—Do, please, read this first person account of one mother's induction into the art of teaching her deaf child. Would that we might have more such revealing stories in all the areas of public health in which people learn to help themselves!

FLAXMAN, E. The Deaf Child—a Challenge. *Pub. Health Nursing* 44, 11:606 (Nov.), 1952.

Steady Progress—This paper reminds us that two decades ago Brodie, and others, immunized against polio with formalin-treated vaccines. Nowadays, with quantitative measurements, we are surer of what we are accomplishing or failing to accomplish. Neutralizing antibodies were demonstrated in this study, one that you should know about.

HOWE, H. A. Antibody Response of Chimpanzees and Human Beings to Formalin-Inactivated Trivalent Poliomyelitis Vaccine. *Am. J. Hyg.* 56, 3:265 (Nov.), 1952.

Required Reading—The publication of "Child Health Is Everybody's Business," the jointly prepared brochure that describes the progress toward accepted goals of child health in New York State, is the occasion for this revealing commentary. New York with its superior medical and health facilities probably can do more and does do more, toward better child health than most states, but still remains woefully short in what it might and should do to bring each child into "a state of complete physical, mental and social well-being."

HUBBARD, J. P. Trends. *Pediatrics.* 10. 4:505 (Oct.), 1952.

Milestone—Convincing indeed is this account of successful teamwork between public health nurses and the professional staff of a mental health clinic in a local health department. The nurses refer cases to the clinic, prepare background information, and ready the patients for the services they receive.

MARIL, E. C. The Mental Hygiene Clinic in an Organized Health Department. *Ment Hyg.* 36, 4:560 (Oct.), 1952.

Penalty of Progress—The moral of this conclusion is clear: "Regardless of geographic location (poliomyelitis) antibodies seem to be acquired at an earlier age by those populations which live under primitive sanitary conditions and particularly if crowding also exists."

PAUL, J. R., *et al.* Comparative Neutralizing Antibody Patterns to Lansing (Type 2) Poliomyelitis Virus in Different Populations. *Am. J. Hyg.* 56, 3:232 (Nov.), 1952.

Old People's Disease—In less than six months a half-million D. C. residents had chest x-rays. A summing up of the survey's debits and credits, two years later, is revealing indeed. The usual shortage of diagnostic and treatment facilities and follow-up services was made painfully evident, but more to the point is the revealed need of collateral education of patients and public.

PAYNE, H. M., *et al.* A Study of the Positive Roentgenographic Findings for the 1948

Washington Mass Survey. *Am. Rev. Tuberc.* 66, 5:548 (Nov.), 1952.

A Matter of Semantics?—To multiple screen, or not?—that is the question. First it seems that not many can agree on what multiple screening consists of. So, it is not strange that there are differences of opinion about its value and place in preventive medicine. All very confusing and stimulating!

ROBINS, A. B., *et al.* Multiple Screening Programs. *New York State J. Med.* 52, 21: 2599 (Nov. 1), 1952.

Filthy Streams—Everyone in health work, regardless of his job, will want to know about this nation-covering effort to return our 226 river basins to a semblance of sanitary decency. There are 22,000 sources of pollution. Twelve billions, or so, will do the job!

SCHWOB, C. E., and DWORSKY, L. B. Progress in Water Pollution Control. *Pub. Health Rep.* 67, 11:1080 (Nov.), 1952.

The Common Mouth Thermometer—Glass rods smeared with tuberculous patient's sputa, or cultures of bacteria from the respiratory tract were subjected to various cleaning procedures. In case you are interested, you will find the answers you want in this report.

SOMMERMEYER, L., and FROBISHER, M., JR. Laboratory Studies on Disinfection of Oral Thermometers. *Nursing Research* 1, 2:32 (Oct.), 1952.

Things We Don't Do—This is about the Home Helps, the homes to be helped, and the fitting of whom to which. The City of Leicester has 250 full-time Home Helps (with a long waiting list) who receive £4 17s. 8d per week. Homes helped are mostly those with new babies, or sudden acute illnesses. Others get service as and when available. The full charge is 3s. 6d per hour—assessed according to means.

STEED, P. E. The Leicester Home Help Service. *Pub. Health* 66, 1:4 (Oct.), 1952.

If additional information is desired regarding the articles listed in this Bibliography, please communicate directly with the publications in which they appeared; the addresses are furnished for your convenience.

Am. J. Hyg. (American Journal of Hygiene); 615 N. Wolfe St., Baltimore 5, Md.
Am. Rev. Tuberc. (American Review of Tuberculosis) National Tuberculosis Association, 1790 Broadway, New York 19, N. Y.
J.A.W.W.A. (Journal of the American Water Works Association) 500 Fifth Ave., New York 18, N. Y.
J. Bact. (Journal of Bacteriology) Williams & Wilkins Co., Mt. Royal and Guilford Aves., Baltimore 2, Md.
M. Officer (The Medical Officer) Whitefriars House, 72/78 Fleet St., London, E.C. 4.
Ment. Hyg. (Mental Hygiene), National Association for Mental Health, 1790 Broadway, New York 19, N. Y.
Milbank Mem. Fund Quart. (The Milbank Memorial Fund Quarterly) 40 Wall St., New York 5, N. Y.
New York State J. Med. (New York State Journal of Medicine) 292 Madison Ave., New York 17, N. Y.
Nursing Research (American Journal of Nursing Company) 2 Park Ave., New York 16, N. Y.
Pediatrics (Journal of the American Academy of Pediatrics) 636 Church St., Evanston, Ill.
Pub. Health (Public Health) Society of Medical Officers of Health, Tavistock House, South, Tavistock Sq., London, W.C. 1.
Pub. Health Nursing (Public Health Nursing) 2 Park Ave., New York 16, N. Y.
Pub. Health Rep. (Public Health Reports) Superintendent of Documents, Gov. Ptg. Office, Washington, D. C.

ASSOCIATION NEWS

REPORT ON APHA BRANCHES AND AFFILIATED SOCIETIES

Myron E. Wegman, M.D., of Washington, D. C., chairman of the Governing Council Reference Committee on Branches and Affiliated Societies, presented a report at the Cleveland meeting of the Council in October representing a study which he and his associates had made since September, 1950, of the problems committed to them. The Committee was asked to look at the present structure of Branches and Affiliated Societies, to evaluate the present situation and suggest a pattern for the future. Almost 25 years have elapsed since the Western Branch was established in 1928, followed by the Southern Branch in 1932. There are now 32 Affiliated Societies.

A comprehensive report submitted by the Committee was received by the Governing Council and referred for study to the Branches and Affiliated Societies with the expectation that conclusions would be reached at the New York meeting in November, 1953. Copies have been formally transmitted to each Branch and each Affiliated Society. Other copies are available on request from the APHA office.

In addition to Dr. Wegman, the members of the Committee are:

Marjorie Delavan, former secretary and president, Michigan Public Health Association
Alexander D. Langmuir, M.D., chairman of the Committee on Constitution and By-laws
William P. Shepard, M.D., former secretary, Western Branch, APHA, and former president of the APHA
J. Earl Smith, M.D., past president, Missouri Public Health Association
James Watt, M.D., Louisiana State University Medical School, New Orleans
John M. Whitney, M.D., former secretary, Southern Branch, APHA

NEWS OF APHA AFFILIATED SOCIETIES

Arizona—The Arizona Public Health Association has announced that "Community Health Comes First" will be the theme of its 1953 meeting to be held in Yuma April 15–18. This will be the society's Twenty-fifth Anniversary Meeting.

Florida—The Twenty-fourth Annual Meeting of the Florida Public Health Association was held in Jacksonville October 9 to 11, with a registration of 555. The following new officers were elected:

President—Angus Laird, Tallahassee
First Vice-President—Robert D. Higgins, M.D., director, Volusia County Health Department, Daytona Beach
Second Vice-President—Henry D. Peters, engineer-director, Division of Sanitation, City Health Department, Jacksonville
Secretary—Fred B. Ragland, director, Bureau of Finance, State Board of Health, Jacksonville
Treasurer—Elsie B. Hyatt, administrative assistant, Bureau of Vital Statistics, State Board of Health, Jacksonville

Minnesota—The Sixth Annual Meeting of the Minnesota Public Health Conference was held October 2–3 in St. Paul, with an attendance of 535. The Conference adopted a resolution urging the extension of state aid to county public health nursing services, a matter expected soon to come before the State Legislature. The new officers are:

President—Irene Donovan, R.N., executive director, Family Nursing Service, St. Paul
First Vice-President—Ralph L. West, D.V.M., secretary and executive officer, State Live Stock Sanitary Board, St. Paul
Second Vice-President—Donald R. Mackay, D.D.S., St. Paul
Treasurer—Allan Stone, executive director, Minnesota Division, American Cancer Society, St. Paul
Executive Secretary—Dean S. Fleming, M.D., chief, Section of Preventable Diseases, State Department of Health, Minneapolis

North Carolina—The following offi-

cers were elected at the Forty-first Annual Meeting of the North Carolina Public Health Association, held in Asheville, October 9–11:

President—Louise P. East, R.N., public health nurse consultant, District Office, State Board of Health, Asheville
Vice-President—Everett H. Ellinwood, M.D., health officer, Guilford County, Greensboro
Secretary-Treasurer—Louise Y. Workman, statistician, City Health Department, Charlotte

North Dakota—The list of speakers at the Ninth Annual Meeting of the North Dakota Public Health Association, held in Grand Forks October 10–11, included health workers from Minnesota, Montana, Arkansas and South Dakota as well as North Dakota. The following officers and representatives were elected:

President—Laura Smith, District Health Unit, Devils Lake
President-Elect—Lynn Byrne, District Health Unit, Devils Lake
Vice-President—Josephine Erickstadt, Garske
Secretary-Treasurer—Hal Neugebauer, Fargo
Representative to Middle States Public Health Association—Cora Shelstad, Finley
Representative to the APHA Governing Council—Bernadine Cervinski, M.P.H., director of health education, State Health Department, Bismarck

Oklahoma—At a three-day meeting, November 20–22, in Norman the Oklahoma Public Health Association offered a series of sectional and general sessions. The program listed 55 speakers, several being from out of state. Officers were elected as follows:

President—N. H. Cooper, M.D., director, Kay County Health Department, Ponca City
Vice-President—Helene Bonneau, R.N., maternal and child health consultant, State Department of Health, Oklahoma City
Secretary-Treasurer—Marjorie Butler, clerical consultant, Division of Local Health Administration, State Department of Health, Oklahoma City

Pennsylvania—A one-day meeting of three sessions took place in Philadelphia on October 3—the 1952 Annual Meeting of the Pennsylvania Public Health Association. At this meeting the society took action urging support for organizing local health units and for a merit system for health department personnel. Officers elected to serve for the coming year are:

President—William G. Mather, Ph.D., professor of rural sociology, Pennsylvania State College, State College
President-Elect—William D. Schrack, Jr., M.D., epidemiologist, State Department of Health, Harrisburg
Vice-President—Mildred C. J. Pfeiffer, M.D., director, Department of Oncology and assistant clinical professor of medicine, Woman's Medical College, Philadelphia
Secretary-Treasurer—Arthur M. Dewees, director, Public Health Development Section, Pennsylvania Tuberculosis and Health Society, Philadelphia

PROGRESS THROUGH SANITATION

A Century of Progress Through Sanitation was the topic for a complete session of the Engineering Section at the recent Annual Meeting. Individual papers highlighted the contributions of the "Giants" of past years; reviewed the role of current sanitation programs in over-all public health activities; and looked ahead to contributions of the future. Another paper brushed away the clouds of parochial vision and offered the beckoning fields of world sanitation. Everyone who attended this session, as well as those who were unable, will be glad to know that the cooperative support of the National Sanitation Foundation will make it possible to publish the papers as a special supplement to a forthcoming issue of the *Journal*.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Captain Harold H. Audet, M.C., 3810th Group, Maxwell Air Force Base, Ala., Preventive Medicine Officer

Roy D. Hildebrand, M.D., 210 W. High Ave., New Philadelphia, Ohio, Health Commissioner, Tuscarawas County General Health District

H. K. Kennedy, M.D., D.P.H., Box 310, Boundary Health Unit, Cloverdale, B. C., Canada, Director

Elim Yi-lin Mei, M.D., Dr.P.H., County Health Office, Wailuku, Maui, T. Hawaii, County Health Officer, Board of Health

J. Everett Sanner, M.D., 2032 Park Ave., Baltimore 17, Md., Asst. Health Officer, Baltimore County Health Dept.

Charles Scofield, M.D., Court House, Youngstown, Ohio, Health Commissioner, Mahoning County

Laboratory Section

Raymond A. Brown, Ph.D., Parke-Davis and Co., Research Laboratories, Detroit 32, Mich. Director, Bio-Assay Division

Frederick C. Fink, Ph.D., 189–27 39th Ave., Flushing 58, N. Y., Coordinator, Hospital Laboratory Advisory Service, Chas. Pfizer and Company, Inc.

David M. Hamilton, M.A., Becton, Dickinson and Co., Columbus, Neb., Bacteriologist

Warren Litsky, Ph.D., Marshall Hall, Univ. of Massachusetts, Amherst, Mass., Asst. Research Professor.

Wayne Patchen, 1427 Henning Drive, Cleveland 24, Ohio, Laboratory Director, Hillside Dairy Company

Alfred P. von Auersperg, M.D., 195 Front St., Binghamton, N. Y., Asst. Pathologist, Binghamton City Hospital

Statistics Section

Mrs. Anna R. Muse, 20 Colonial Ave., Newtonville 60, Mass., Secretary, Newton Health Dept.

Lawrence Ng, 1159 W. 37th Drive, Los Angeles 7, Calif., Public Health Statistician, Los Angeles County Health Dept.

Anne Sawchak, 880 S. Quaker Lane, Elmwood, West Hartford, Conn., Medical Record Librarian, Veterans Administration Hospital, Newington, Conn.

Engineering Section

Sidney Coyne, 3990 Saxon Ave., New York 63, N. Y., Health Inspector, New York City Health Dept.

Merrill Taub, 541 E. Fairchild Drive, Midwest City, Okla., Asst. Sanitary and Industrial Hygiene Engineer, U. S. Air Force, Tinker AFB, Oklahoma

William C. Tims, Sewage Treatment Plant, City Hall, 4th Floor, Tampa, Fla., Plant Superintendent, Bureau of Sanitary Sewers

Industrial Hygiene Section

Frederick F. Harris, 3733 Brightway, Weirton, W. Va., Research Engineer, Smoke Control Division, Weirton Steel Company

Food and Nutrition Section

Capt. Theodore Dubin, V.C., 2800 Woodley Road, N.W., Washington 8, D. C., Chief, Food Chemistry Section, Army Medical Service Graduate School, Walter Reed Army Medical Center

Mary C. Egan, M.S., 4 Elk St., Albany, N. Y., Sr. Public Health Nutritionist, New York State Dept. of Health

Ethel M. Griggs, M.S., 2911 Milan St., New Orleans, La., Public Health Nutritionist, Louisiana State Dept. of Health

Maternal and Child Health Section

Myrtle I. Brown, M.S., R.N., 615 N. Wolfe St., Baltimore 5, Md., Asst. Professor, Maternal and Child Health Division, Johns Hopkins University, School of Hygiene and Public Health

Public Health Education Section

William H. Ireland, M.A., 1535 Summit Ave., Seattle 22, Wash., Exec. Sec'y, Health and Welfare Council of Seattle and King County

J. Germaine Matthews, M.P.H., 425 Virginia Ave., Petersburg, Va., Student, North Carolina College

Ada M. Paul, M.P.H., 70 Charles St., Lynbrook, L. I., N. Y., Instructor, Division of Health Education, School of Public Health, Columbia Univ.

Mary E. Reilly, 9 S. Pennsylvania Ave., Atlantic City, N. J., Exec. Director, Atlantic County Assn. for Mental Health

John A. Scharffenberg, M.D., College of Medical Evangelists, Loma Linda, Calif., Instructor, Physical Diagnosis

Charles F. Shockey, M.S., 2327 W. Emerson

St., Seattle, Wash., Teacher of Bacteriology and Public Health, Seattle Pacific College

Allen D. Spiegel, 1120 Brighton Beach Ave., Brooklyn 35, N. Y., Health Publicity Asst., New York City Dept. of Health

Lois E. Villaume, 172 Prospect Terrace, St. Paul 7, Minn., Director of Nursing Service, St. Paul Chapter, American Red Cross

Public Health Nursing Section

Hester D. West, R.N., M.A., 125½ Chestnut, Abilene, Tex., Sr. Public Health Nurse, Abilene-Taylor County Health Unit

Epidemiology Section

Ernesto J. Aberg-Cobo, Araoz 2911, Buenos Aires, Argentina, S. A., Jefe, Seccion Higiene de la Direccion Tecnica de Higiene de la ciudad de Buenos Aires

Major Antonio Guijarro, M.C., U. S. Army Hospital, Fort Devens, Mass., Preventive Medicine Officer

Abraham Horwitz, M.D., M.P.H., 1501 New Hampshire Ave., N.W., Washington 6, D. C., Chief, Professional Education Branch, Pan American Sanitary Bureau, Washington, D. C., Regional Office of the World Health Organization

Capt. Reuel A. Stallones, M.C., Preventive Medicine Office, Camp Pickett, Va., U. S. Army

School Health Section

Edna I. Callaghan, M.A., Campus Station, Socorro, N. M., Interested Citizen

John J. Caprio, M.A., 161 Williamson Ave., Bloomfield, N. J., Health Educator, Passaic County Tuberculosis and Health Assn.

Ladda Sinhaseni, M.B., 28 Howe St., New Haven, Conn., Acting Head, School Health Clinic, National Stadium, Bangkok, Thailand

Dental Health Section

J. Clarence Bouillon, D.D.S., M.P.H., 775 Gosford St., Montreal, Quebec, Canada, Chief Dental Officer, Montreal Dept. of Health

Medical Care Section

William J. Burns, 606 Townsend, Lansing 15, Mich., Exec. Director, Michigan State Medical Society

Lt. Colonel George A. Goder, Office of the Air Surgeon, Langley Air Force Base, Va., Director of Professional Services, Tactical Air Command

Samuel Lissitz, 2633 16th St., N.W., Washington, D. C., Administrator, Rehabilitation Center, Kabat-Kaiser Institute

Thomas F. Nevins, Jr., M.D., Esso Standard Oil Company, Box 222, Linden, N. J., Medical Director, Bayway Refinery

Arthur S. Schnitzer, M.D., D.T.M., Broad St., Monrovia, Liberia, Africa, Superintendent, Maternal and Child Welfare Center, Liberian Government

Unaffiliated

Thomas J. Brooks, Jr., Ph.D., M.D., 1005 Fillmore St., Oxford, Miss., Professor and Chairman, Dept. of Preventive Medicine and Public Health, School of Medicine, Univ. of Mississippi

John E. Connolly, 16 Ackers Ave., Brookline, Mass., Asst. Sanitarian, U. S. Public Health Service

Jay R. Hodes, M.S.P.H., 116 Goldsmith Ave., Newark, N. J., Student, Univ. of North Carolina

Errol R. King, D.O., 4046 Orange St., Riverside, Calif., Physician and Surgeon, Doctor of Osteopathy

APHA membership application blank on page XXVII

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

POSITIONS AVAILABLE

Public Health Executive—$11,016 (flat rate) per year. Forty-hour week, paid vacations, sick leave, retirement plan. Must be under 55, graduate of medical school, with one-year internship; plus one year of graduate study of preventive medicine; six months' field experience in recognized state or local health department. One year's experience in public health administration. Write: Wayne County Civil Service Commission, 2200 Cadillac Tower, Detroit 26, Mich.

Public Health Physician—as health officer for an established county health department of 37,000 in northwestern Illinois. Salary range: $7,200–9,000, plus travel allowance. Usual vacation, sick leave, and retirement fund. Qualified physician may start above the minimum. Write: President, Lee County Board of Health, 123 E. First St., Dixon, Ill.

Public Health Physician—Health officer Champaign-Urbana Public Health District; bi-township unit with population of 58,385; budget approximately $55,000; area includes excellent schools and the University of Illinois. Salary dependent on qualifications. Write: Roland C. Cross, M.D., Director, Illinois Dept. of Public Health, Springfield, Ill.

Physicians—with or without public health training—and **Pediatricians** needed in maternal and child health program at salaries from $6,908–9,887. Five-day week, pension, Civil Service appointment. Write: Dr. E. R. Krumbiegel, Milwaukee Health Department, City Hall, Milwaukee, Wis.

Health Educator—to develop and promote health education in Oregon industries and to correlate the work with other health education programs in the state. M.P.H. in health education. Should be familiar with—or experienced in research in the industrial field. Salary range: $336–410, plus $9.50 per diem maximum and 7 cents a mile for use of car. Liberal vacation, sick leave, retirement. Write: A. T. Johnson, Personnel Director, Oregon State Board of Health, P.O. Box 231, Portland, Ore.

Health Educator—training in public health education and experience in community organization required for statewide social hygiene program with established voluntary agency in northeastern region. Salary in accordance with experience. Write: **HE-51**, Employment Service, APHA.

Sanitarian—for generalized program in city health department. B.S. degree required. Civil Service, provisions for sick leave, and retirement. Car furnished. Write: Personnel Officer, City Hall, 241 W. South St., Kalamazoo, Mich.

Sanitarian—for generalized program. Salary open, depending on training and experience. State Merit System, five-day week, annual leave three weeks, retirement; car or mileage. Write: Dr. Charles R. Hayman, Harford County Health Dept. Bel Air, Md.

Sanitarian—for broad program of community sanitation in city of 71,000. Salary $332–395 per month. Forty and three-fourths hours per week. Paid vacation, sick leave, transportation, hospital and surgical insurance and retirement provided. Write: Commissioner of Health, 730 Washington Ave., Racine, Wis.

Sanitarian—in county health department serving a population of 65,000. Generalized sanitation program including urban and rural activities in Northern California county with many recreational advantages. Personnel policies include vacation, sick leave, and retirement benefits. Salary range $268–332 per month. Probable starting salary for qualified person—$283 per month. Car furnished, or 8 cents per mile, if personal car used. Write: Richard C. Murphy, M.D., Butte County Health Dept., 2430 Bird St., Oroville, Calif.

Sanitary Engineer—for Arizona State Department of Health. Salary ranges $290–340 (for engineer-in-training) to $440–540, depending upon background. Write: Merit System Council, 1632 West Adams, Phoenix, Ariz.

Bacteriologist III—to assist in the direction of the Montana State Bacteriological Laboratory at Helena. Salary range $4,260–5,280. Fifteen days annual

vacation, sick leave privileges, and excellent retirement system. Write: Joint Merit System, 338 Sam W. Mitchell Building, Helena, Mont.

Junior Bacteriologist (Chemist)—Five and one-half days, 42-hour week, sick leave, paid vacation, retirement plan, Civil Service. Qualifications: degree with chemistry at least through qualitative analysis and minor in biological sciences. Some experience preferred. Duties: basic bacteriological procedures and food chemistry (AOAC). Salary: $3,032–3,432. Write: Earl E. Long, Director, Division of Laboratories, Akron Health Dept., Akron 8, Ohio.

Dental Hygienist—to assist dental clinician; to perform examinations and prophylaxis; to develop dental health educational program in a rural-suburban community of 200,000, adjacent to Washington, D. C. Beginning salary between $3,213–3,675. Write: Administrative Assistant, Montgomery County Health Dept., Box No. 471, Rockville, Md.

Public Health Nurse—Generalized program in city of 71,000. Starting salary for certified nurse $280 per month. Nurse with unmet certificate credits may qualify through nearby university while working—starting salary $265. Both grades, 40¾ hours week, paid vacation, sick leave, transportation, hospital and surgical insurance and retirement provided. Write: Nursing Supervisor, Racine Health Dept., 730 Washington Ave., Racine, Wis.

Public Health Nurse—organized county health department in Northern California. Population 65,000. Generalized program (except school nursing). New health center building. Western town with scenic areas and recreational advantages. Good personnel policies, vacation, sick leave, and state retirement plan. Salary range $298–370. Car furnished, or 8 cents per mile. Write: Richard C. Murphy, M.D., Butte County Health Dept., 2430 Bird St., Oroville, California.

Public Health Nurses—for urban and rural health work. Vacation, sick leave, and retirement benefits. Salary open.

Nursing Supervisor—to direct a public health nursing program in a city-county health department. Must have degree in public health nursing and experience in nursing administration and supervision. Ideal working environment in modern health center. Vacation, sick leave, retirement benefits, and travel allowance. Salary open. Opportunity for developing a training center. Write: Wayne County Board of Health, 1761 Beall Ave., Wooster, Ohio.

Supervising Tuberculosis Nurse—County health department including staff of 44 public health nurses serving rural-suburban community of 200,000; adjacent to Washington, D. C. Salary: $4,410–5,250. B.S. degree supplemented by training in tuberculosis; four years' experience including public health, supervision and tuberculosis nursing. Write: County Personnel Board, Court House, Rockville, Md.

All communications should be sent to Berneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

WANTED—(a) PUBLIC HEALTH PHYSICIAN with background in health education to direct broad program of medical education. (b) COUNTY HEALTH COMMISSIONER; California. (c) COMMISSIONER, city health department established 25 years; Midwest; $12,000. (d) DIRECTOR PUBLIC HEALTH NURSING to succeed director retiring after 15 year tenure; metropolitan health department; Midwest. (e) PUBLIC HEALTH NURSING SUPERVISORS to direct rehabilitation programs, important industrial company; New England and South. (f) PUBLIC HEALTH NURSE for foreign assignment; immediately. (g) SUPERVISORS AND STAFF NURSES; generalized program, school nursing; cars provided; California. (h) HEALTH EDUCATOR experienced community organization to direct health division; $6,000; Pacific Coast. (i) SANITARIAN to conduct program, town of 50,000, Midwest. (j) SANITARY ENGINEER AND INSTRUCTOR in civil engineering; department of engineering, one of leading colleges; duties: teaching (sanitary engineering), research; West. MEDICAL BUREAU, BERNEICE LARSON, PALMOLIVE BUILDING, CHICAGO.

WANTED—OPPORTUNITIES: (a) NURSING ADMINISTRATOR; B.S. (Education); MPH; four years, public health and school nursing; six years, health educator, city-county health department. (b) PUBLIC HEALTH PHYSICIAN; M.P.H.; Yale; 6 years, chief, division of industrial hygiene, metropolitan health department; eligible examinations, American Board of Public Health and Preventive Medicine. (c) HEALTH EDUCATOR; B.S. (Health and Physical Education); M.S. (Health Education); four years' teaching; three years, health educator, city-county health department. (d) PUBLIC HEALTH ADMINISTRATOR; MPH; layman; three years, administrative assistant, health department. (e) SANITARIAN or PUBLIC HEALTH ENGINEER; B.S. (Agricultural Engineering); 18 months' graduate training, civil engineering; three years' teaching; four years, sanitary engineer, state health department. MEDICAL BUREAU, BURNEICE LARSON, PALMOLIVE BUILDING, CHICAGO.

NEWS FROM THE FIELD

WHO NEWS

WHO Aids Public Health in Iran

Occupational Health—Arising out of Iran's change-over from an agrarian to an industrial economy, a program to train occupational health workers has been recommended to the Government of Iran by a WHO consultant. Leon Lewis, M.D., industrial health consultant of Berkeley, Calif., following a three-month survey in Iran, recommended WHO and ILO aid in the organization of training for experienced technical personnel. His study followed a request to both agencies for aid in developing an industrial hygiene program.

Dr. Lewis found about 150,000 persons employed in heavy industry such as railways, mines, and oil; 150,000 in handicrafts such as carpetmaking, and about 57,000 in consumer-goods industries. Although the industrial working force is small in relation to the total 18,000,000 population, the effects of industrialization have been profound, chiefly created by the extensive migrations to Teheran, the capital and industrial center. The government has already enacted a labor law, which Dr. Lewis finds provides "a sound basis for the development of a fairly extensive basic industrial, medical, and social security system."

Venereal Disease Control Services

A comprehensive program for the control of venereal diseases was undertaken in December, 1952, by a WHO team and a matching team of Iranians. The program had been worked out earlier between the government and WHO.

The WHO team is headed by Alton A. Smahl, M.D., since 1938 epidemiologist and VD consultant of the New York City Health Department, who has been joined by a serologist and a public health nurse. The joint Iranian-WHO team works cooperatively with Dr. S. Imami, VD adviser to the Iranian government and director of Nejat Hospital in Teheran where the team is stationed, with the University of Teheran Medical School, and the various maternal and child health centers in the city. A serological laboratory is being set up with equipment, drugs, and the salaries of the WHO team financed by funds from the UN Technical Assistance Board. The plan is to extend the control measures throughout Iran as fast as provincial health workers can be trained.

Malaria Disappearing from Lashio

Lashio, of Burma Road fame, is fast losing its name as a malaria death trap, reports WHO's Regional Office for Southeast Asia. Only four months after 355 villages, with a population of 55,000, had their first round of DDT spraying, leading officials and village headmen interviewed by the WHO reporter in October, 1952, all told the same story of malaria disappearing from areas where previously almost the whole population had been its victim. This testimony is the more striking, as September is traditionally a "peak month" for malaria attacks. One headman is reported to have declared that his family could now sleep without nets for the first time in his memory and that flies, cockroaches, and bedbugs had practically vanished from the village.

The project, covering an area of 800 square miles near the Chinese border, is operated by a team of 25 Burmese health workers led by a Burmese malaria expert and assisted by seven WHO specialists and technicians.

Detailed surveys show that in villages where previously one-third of the babies became infected with malaria during their first year of life, not one baby born since the village was DDT-sprayed has

become infected. During 1953 the team will extend its antimalaria operations to another 110,000 persons.

Five New Biological Standards

International biological standards are set up to achieve uniformity in the composition of drugs, sera, etc., and thus to avoid confusion from one country to another. The first, the International Standard for Diphtheria Antitoxin, was established in 1922 by the League of Nations Health Organization. Five new ones were adopted by WHO's Expert Committee on Biological Standardization at its sixth session in Geneva in October, 1952. This brings the total up to 53 of the 88 projected.

Among the five most recently adopted is the anti-*Brucella abortus* serum used in the diagnosis of brucellosis in man or animal. It is one of the few standards adopted that is for diagnostic rather than therapeutic purposes. It is expected that the future list will include a growing proportion of diagnostic standards.

The Food and Agriculture Organization of UN, which cooperates closely with WHO in establishing standards designed to facilitate control of diseases that attack both man and animals, shared in the development of the anti-*Brucella abortus* serum standard.

Aftosa Center Plans Training

Full-scale development of the Pan American Foot and Mouth Disease Center in Brazil is now under way. The Brazilian Congress late in 1952 ratified the agreement for this project made in June, 1951, between the Brazilian government and the Pan American Sanitary Bureau.

The Center is located in Sao Bento, near Rio de Janeiro. It provides diagnostic, field consultation, training, and research services on request to all the governments throughout the Americas. Planned for early 1953 are a series of six-week training courses. These will be of two types, one emphasizing preventive measures from areas currently free from the disease; the other, for students from infected areas, will stress measures to prevent the spread of the disease, together with general control and eradication measures.

PRENTISS AWARD TO DR. W. W. PETER

The Cleveland Health Museum's ninth annual Elisabeth S. Prentiss National Award in Health Education has been awarded to W. W. Peter, M.D., Dr.P.H., chief of the professional training branch, Division of Health, Welfare, and Housing of the Institute of Inter-American Affairs. The award was presented at the Museum's Twelfth Anniversary Luncheon in Cleveland on November 18, 1952. It consists of a plaque and an illuminated citation reading: "Health Apostle to the Chinese, Doctor-Friend of the Navajos, Medical Counselor to Latin Americans, A True Teacher and Master Health Showman."

Dr. Peter's career encompasses a period in China following World War I when he promoted health education through a traveling cavalcade of wheelbarrows containing health education exhibits, helped conquer the 1919 Foochow cholera epidemic, lectured in medical schools, and earlier was a surgeon in a mission hospital during the Chinese Revolution of 1911. From 1934–1942 he organized the Navajos in their fight against tuberculosis, as director of the U. S. Navajo Service, and was known as the "flying doctor." After a period as associate professor of public health in Yale University, he undertook his present work in 1945. Since then 1,302 Latin American medical and public health personnel have been placed in United States institutions for advanced study.

NEW APPROACH TO MEDICAL CARE

A new plan for providing comprehensive medical care to the public has been announced by the American Federation

of Medical Centers, a national, nonprofit organization. The plan includes the organization of community-sponsored medical centers which will house group practice units of physicians and will provide preventive as well as therapeutic medical and dental care with the aid of necessary technicians. The cost is to be distributed over the community by a system of voluntary prepayment to private insurance companies of a premium of one to two dollars a week.

The AFMC is an educational and promotional body that will assist communities in the organization of the medical center programs. Organized by a small group of businessmen and doctors, the AFMC places emphasis upon the application of sound business principles to the marketing of the advantages of modern medical technology. E. H. Norris, M.D., founder of AFMC and one-time dean of Wayne University College of Medicine, says: "Health is a vast national resource and must be developed by the same kind of thinking that developed our other national resources such as coal, iron ore, lumber, and soil." Independent, community-sponsored group medical centers under sound business and professional management are viewed as the answer.

Details are available in a *Fact Folio* which can be obtained from the American Federation of Medical Centers, 3919 John R St., Detroit 1, Mich., or 500 Fifth Ave., New York, N. Y.

1953 MARY ROBERTS FELLOWSHIP AWARD

The American Journal of Nursing Company announces that entries are now being accepted for the fourth Mary M. Roberts Fellowship Award. Presentation of the award will be made in June, 1953, to the winner of a nation-wide competition. The Fellowship was established in 1950 in honor of Mary M. Roberts, editor emeritus of the *American Journal of Nursing* "to assist a qualified, professional nurse to prepare herself in the aspects of writing about nursing and nursing education for professional and lay publications."

The recipient is awarded a sum to defray the expense of a year's study at a recognized college or university. Competitors are judged on general professional qualifications, interest and facility in writing, and on the basis of an evaluation of a specially prepared manuscript on some subject pertaining to nursing. The competition is open to all professional nurses—men and women—who have had at least two years of experience in some field of nursing following graduation. The final date for submitting credentials and manuscripts is March 1, 1953. Application forms and other details from "Fellowship," American Journal of Nursing Company, 2 Park Ave., New York 16, N. Y.

POSTGRADUATE COURSE IN DIABETES

The first postgraduate course in diabetes and basic metabolic problems to be conducted by the American Diabetes Association will be offered at the University of Toronto, Canada, under the direction of Charles H. Best, C.B.E., M.D., F.R.S., director of the Banting and Best Department of Medical Research of the University, January 19–21, 1953. Over 30 lectures and round-table discussions are planned. The number of registrants will be limited to 100. Fees are $20 to members of the American Diabetes Association; $40 to nonmembers.

Developed by the Association's Committee on Postgraduate Education, whose chairman is Edward L. Bortz, M.D., the course will be directed by Ray F. Farquharson, M.B., professor of medicine of the University of Toronto, with Andrew L. Chute, M.D., professor of pediatrics as associate director.

Details of the three-day program and registration and hotel information may be obtained from J. Richard Connelly,

Executive Director, American Diabetes Association, 11 West 42nd St., New York 36, N. Y.

INSECTICIDE VAPORIZERS STATEMENT

The Interdepartmental Committee on Pest Control has revised its September 21, 1951, statement on health hazards of lindane, DDT, or a combination of the two as insect vaporizers for the control of flying insects. The current recommendations released October 22, 1952, are:

1. The insecticide should be continuously released over a 24-hour period at the rate not to exceed 1 gm. per 15,000 cubic feet per 24 hours. The dispensing rate per hour should not vary more than 25 per cent. Devices should be so constructed that output in excess of that recommended is impossible.
2. Installation should be made only in commercial or industrial premises, and similar locations where human exposure will be on a working-day basis—not continuous.
3. The devices should not be used in homes or sleeping quarters.
4. Unless it can be demonstrated that contamination does not occur, the Committee recommends against the use of insecticide vaporizers in rooms or areas where food is served, processed, or stored.
5. The Interdepartmental Committee has no evidence that other insecticides when used in vaporizers in space occupied by humans or where food is present are effective or safe.

S. W. Simmons, Communicable Disease Center, Public Health Service, Savannah, Ga., is secretary of the Interdepartmental Committee.

ENGINEERING RESEARCH IN INDIA

Recent reports by the Hyderabad Engineering Research Laboratories recount the extended research program being conducted in sanitary engineering by the staff of the Laboratories, particularly in the field of housing. Reminiscent of the revolutionary nature of Benjamin Franklin's development of our wood-burning cook stove is the "smokeless kitchen" developed at the Research Laboratories to meet the special needs of India. Construction is such that a minimum of materials is required, all of which are readily available throughout India. Dr. S. P. Raju, director of the Laboratories, reports considerable interest in this household development, not only in all parts of India but also in wide areas of Africa, Thailand, Palestine, and the British West Indies. Another contribution of the Laboratories has been the development of a standard layout for a simple village home of two rooms. Further information from Dr. Raju at the Laboratories, Red Hills, Hyderabad, Deccan, No. 1, India.

NEW YORK STATE ALCOHOLISM COUNCIL

A group of committees on alcoholism in New York State have created the New York State Council of Committees on Alcoholism whose purpose is to coordinate and promote activities in the area of alcoholism on a state-wide basis. The committees affiliated also with the National Committee on Alcoholism are voluntary health agencies concerned with public health education on alcoholism and the promotion of treatment facilities for alcoholics. The secretary is Dwight C. Monnier, Ed.D., of the Western New York Committee for Education on Alcoholism, Inc., 2183 Main St., Buffalo.

VETERINARY PUBLIC HEALTH AWARD

The American Board of Veterinary Public Health has established the Claude S. Bryan Memorial Award at Michigan State College, in recognition of the interest in veterinary public health by Dr. C. S. Bryan, late dean of the School of Veterinary Medicine at Michigan State College.

This award will be given annually to the senior veterinary student at M.S.C., who, in the opinion of the faculty of the school, has done the best work in subjects pertaining to veterinary public health. The recipient's name will be

engraved on a plate of the plaque and hung in the lobby of Ward Giltner Hall. In addition, he will receive a copy of a public health text. The presentation of the award will be made at the spring honors convocation of the School of Veterinary Medicine.

The American Board of Veterinary Public Health is a specialty board made up of public health veterinarians. Its objectives are:

1. To further the educational and scientific progress in the specialty of veterinary public health and to encourage education, training, and research in veterinary public health.
2. To establish standards of training and experience for qualification of specialists in veterinary public health.
3. To further the recognition of such qualified specialists by suitable certification and other means.

ENGLISH-SPANISH ENGINEERING TERMS

A comprehensive translation of sanitary engineering terms from English into Spanish has been prepared by V. J. Moya in his recent publication *Nomenclatura de Ingeneria Sanitaria*. The volume includes the definitions for 3,700 words arranged alphabetically. It is available from Ing. V. J. Moya, Calle del Olivo No. 30, Villa Obregon, Mexico 20, D.F.; $1.00.

PHS VIRUS ENCEPHALITIS RESEARCH

The research work of the Public Health Service on mosquito-borne virus encephalitis is being unified. The first step is the recent concentration of both field and laboratory studies at Greeley, Colo. The Encephalitis Investigations Unit of the Communicable Disease Center was recently transferred from Kansas City, Kans., to Greeley, which has hitherto been headquarters for field work on encephalitis during summer months. Also, early in 1953, a section of the CDC's virus laboratory at Montgomery, Ala., is being moved to the Greeley Center. In addition to the research studies, the unit provides epidemic assistance to states in the midwest and Rocky Mountain areas upon request of state health departments. T. Aidan Cockburn, M.D., is chief of the unit.

FILMS ON POLIO NURSING CARE

Nursing Care in Poliomyelitis is the title of a new series of films produced by the Nursing Advisory Services for Orthopedics and Poliomyelitis of the National League for Nursing with the cooperation of the National Foundation for Infantile Paralysis. The series consists of three half-hour 16 mm. sound films, one each on the care of patients with low-spinal polio, bulbar polio, and high-spinal, thoracic, or respiratory polio.

Also ready for sale or loan are the same agency's revised series of 2" x 2" slides on the care of infants with clubfoot and on plaster casts. These are 50¢ per black and white slide; 75¢ Kodachrome.

National League for Nursing, 2 Park Ave., New York 16, N. Y.

MORE ON WATER FLUORIDATION

Fluoridation of Municipal Water Supply—A Review of the Scientific and Legal Aspects, by Charles S. Rhyne and Eugene F. Mullin, Jr., condenses the case for and against fluoridation of public water supplies. Prepared for the National Institute of Municipal Law Officers as a guide to its members in questions involving water fluoridation, the report includes a brief historical review of fluoridation and lists the cities with fluoridated water supplies. The technical aspects of fluoridation, legal action taken against cities to prevent fluoridation of water, fluoridation in relation to religious freedom, municipal liability, and possible violation of the Federal Food, Drug and Cosmetic Act are each discussed. Copies available from the Institute, 730 Jackson Place, N.W., Washington 6, D. C.; $3.00.

RABIES IN MINNESOTA

According to a recent report from the Minnesota Department of Health, 209 cases of rabies in animals were reported to the Department during the period January 1 to August 25, 1952. Of the total fewer than one-third were in domestic animals and 36 in cattle, only 11 cases in dogs, 13 in cats. More than half of the cases, 127, were in skunks. Squirrels, racoons, foxes, and civet cats each contributed two or three cases.

TRANSPORTATION OF ANIMAL DISEASE ORGANISMS

The U. S. Department of Agriculture has called attention to several recent illegal movements of animal disease organisms and vectors in interstate commerce. The Department points out the danger that might result from the uncontrolled movement of such agents, particularly in relation to the spread of animal diseases. Specific federal laws place upon the secretary of agriculture the responsibility for controlling the shipment in interstate traffic or importation into the United States of any material that might contribute to the spread of contagious diseases among animals in this country. Researchers and laboratory directors working with or using animal disease organisms and vectors are urged to acquaint themselves with the regulations of the Department of Agriculture and to comply with them.

FOOD SERVICE EQUIPMENT STANDARDS

Food Service Equipment is the second in the series of Standards to be published by the National Sanitation Foundation. (See A.J.P.H., Dec., 1952, p. 1638.) As with the first, this one has been prepared with the aim of developing uniformity in the construction of equipment used in kitchens, bakeries, pantries, and cafeterias for the preparation and serving of food to the public. A special Joint Committee on Food Equipment Standards prepared the report. The recommendations should assist the public health official in determining desirable construction features of this type of equipment and be of equal value to the manufacturer through standardization of requirements of official health bodies. Available from National Sanitation Foundation, University of Michigan School of Public Health, Ann Arbor, Mich.; 50¢.

LIST OF CHLORINE PRODUCERS

The Chlorine Institute has prepared a list of liquid chlorine producers and repackagers in the United States, Canada, and Cuba. The list, corrected to August 14, 1952, is arranged alphabetically by states, giving the name and address of each producer of chlorine. Also shown is information as to whether the producer has chlorine available in cylinders, ton containers, or single unit tank cars. Free of charge from the Institute, 50 East 41st St., New York 17.

VENEZUELA PUBLIC HEALTH ASSOCIATION

The Sociedad Venezolana de Salud Publica was established on September 27, 1952, in Caracas, Venezuela, as a result of much planning by the professional public health workers of Venezuela extending over several years.

Among the officers elected were:

President—Dr. A. Arreaza Guzman
Vice-President—Dr. Dario Curiel
Secretary—Dr. F. Castillo Rey

The officers have expressed the hope that the relationship between the Venezuelan Public Health Society and the American Public Health Association may continue strong and mutually helpful.

EXPANDED EMPLOYEE MEDICAL PROGRAM

The Pennsylvania Railroad has completed a study that revealed the need to modernize the medical department and the opportunity to improve mental health. Hence, it has planned an expanded medical program, with modern equipment, to be directed by a chief

medical officer with offices in Philadelphia and two additional regional offices in Chicago and Pittsburgh. According to the announcement, the new program will eventually encompass all phases of industrial hygiene, including preventive medicine, health education, periodic health examination, dispensary treatment and care, and voluntary medical counsel. Norbert J. Roberts, M.D., for the past year on the medical staff of the Standard Oil Company (N.J.), has been appointed chief medical officer.

HAWAII PUBLIC HEALTH ASSOCIATION

The 1952 Annual Meeting of the Hawaii Public Health Association was held in Honolulu, on October 30. Sessions were held on nutrition, health education, sanitation, and health and civil defense, with two persons from the mainland among the speakers. Projects proposed for the society's attention in 1953 are supporting legislation for the fluoridation of water and financial support of the nutrition program, and arousing public interest in civil defense. Officers were elected as follows:

President—Marjorie G. Abel
Vice-President—Francis Woo
Secretary—Edward Mau
Treasurer—Lewis Nutting.

STARTING COUNTY HEALTH SERVICES

Jessamine County, Kentucky, with a population of 12,500, has initiated local health services with the appointment of a sanitarian, nurse, and clerk. Medical consultant service is being provided by the physician members of the Board of Health, each serving for a three-month period. A local women's club helped to equip the office.

This latest organization leaves but four counties in the state, with a total population of less than 35,000, without some beginning of local health services. However, as of mid-1952, 16 of the 79 county or multicounty health departments were without a health officer, an additional 11 were served by local practitioners on a part-time basis, and 13 were in charge of nonmedical health administrators.

PUBLIC HEALTH TOUR OF BRITAIN

The Women Public Health Officers' Association, 7 Victoria St., London, S.W. 1, has announced an educational tour of England and Wales, May 16–30, 1953, preceding the coronation of Queen Elizabeth II.

The purposes of the tour are to enable those taking part to learn something of British public health and social services, to promote friendly personal contacts among fellow workers of different countries and to show some of the finest scenery in England and Wales. The inclusive cost is estimated at £38 sterling. Women public health workers who are interested should communicate with the above address.

SCIENCE MEETINGS AROUND THE WORLD

A list of international and foreign meetings of interest to United States scientists has been issued by the Office of Scientific Information, National Science Foundation (2144 California St., N. W., Washington 25, D. C.). Included is pertinent information on 132 meetings to be held between October, 1952, and the end of 1955. The list includes a number of meetings closely related to public health. A limited supply is available for scientists and scientific organizations.

SANITARY ENGINEERING "FIRST"

Sanitary Engineering Progress, No. 1, Vol. 1, was published by the University of Florida in October, 1952. It is designed as a quarterly resumé of sanitary engineering activities at the University, including research completed or under way. Copies can be obtained free from the Director, Florida Engineering and Industrial Experiment Station, Gainesville, Fla.

PERSONALS

J. BURNS AMBERSON, M.D., visiting physician in charge of the Bellevue Hospital chest service, and professor of medicine at the College of Physicians and Surgeons, Columbia University, has succeeded FRANCIS B. TRUDEAU, M.D., retired, as president of Trudeau Sanatorium, Saranac Lake, N. Y.

SAMUEL L. ANDELMAN, M.D.,† formerly health officer of Harlan County (Kentucky) Health Department, has recently been appointed health officer for the 14-county southern region of the Illinois Department of Public Health, with headquarters at Carbondale.

ROBERT W. BACORN, M.D., has been appointed assistant district health officer, Division of Local Health Services, New York State Department of Health, assigned to the Rochester District Office.

E. M. BLUESTONE, M.D.,* was re-elected president of the American Association of Hospital Consultants at its annual meeting in Philadelphia in September, 1952.

EARL J. BLOMMER, after graduate studies in Austria, is on the bacteriological laboratory staff, Montana State Health Department, Helena.

EDWIN CAMERON, M.D., C.M., M.P.H.,* who has served for the last year in Damascus, Syria, under the Smith-Mundt Exchange, has accepted a position as adviser in education and training for the southeast Asia area, WHO, New Delhi, India.

WILLIAM G. CARR, on the National Education Association staff since 1929, has succeeded WILLARD E. GIVENS, retired, as executive secretary of the Association in Washington, D. C.

MAJOR JOEL I. CONNOLLY,* assistant to the president, Chicago Board of Health, Chicago, Ill., has been appointed to the position of sanitary engineer in the Mutual Security Administration and has been assigned to Manila, P. I.

LEONARD COOK,† has been appointed biostatistician; ARTHUR KRAUS † and ROBERT PATTON † as senior biostatisticians, Office of Statistical Services and Research, New York State Health Department, Albany, N. Y.

ROBERT DALTON, for the past three years state milk sanitarian, has been appointed director of the Division of Hotel and Resort Inspection for the Minnesota State Health Department, Minneapolis.

MAURICE DAVIS, M.D., for the past 10 years in public health work in Nashville, Tenn., has been appointed health officer of Franklin County, Kentucky, with headquarters in Frankfort.

J. B. DELLINGER, formerly a group therapist at the Southern Michigan State Prison in Jackson, has been made chief of the Section on Alcohol Studies, Maryland State Department of Health, Baltimore.

J. V. DEPORTE, PH.D.,* director of the New York State Health Department's Office of Vital Statistics, has been granted a year's leave of absence to serve the UN as an expert on vital statistics at the Inter-American Center of Biostatistics at Santiago, Chile.

JAMES P. DIXON, JR., M.D.,* former commissioner of health for Philadelphia, has been appointed acting assistant director of the Public Health Service's new 500-bed Clinical Center for Research, Bethesda, Md.

DAPHINE DOSTER,† Public Health Service nurse officer, and since 1949 regional public health nursing consultant with headquarters in Washington, D. C., has been loaned to the University of Arkansas, Little Rock, to organize a collegiate school of nursing and serve as its acting dean.

JOHAN W. ELIOT, M.D., who has just completed a three-year fellowship at Mayo Clinic, Rochester, Minn., has been appointed pediatric consultant in the Division of Maternal and Child Health, Arkansas State Health Department, Little Rock.

GILSON COLBY ENGEL, M.D., president of the Pennsylvania Health Council, received the annual Award of Merit of the Pennsylvania Public Health Association at its annual meeting in Philadelphia, "in recognition of his distinguished service and outstanding activities in the interest of the public health of Pennsylvania."

PAUL R. ENSIGN, M.D.,* director of the Division of Child Health Services of the Montana Board of Health, was named president-elect of the Association of Maternal and Child Health and Crippled Children Directors at their October, 1952, annual convention in Cleveland.

WILLIAM FERGUSON has succeeded FRANCIS GAMELIN as director of the Division of Preventive Mental Health Services, Minnesota State Department of Health, Minneapolis.

NICHOLAS J. FIUMARA, M.D.,* director of the Division of Venereal Diseases, Massachusetts Department of Public Health, has been appointed a lecturer in dermatology and syphilology at Tufts Medical School, Boston.

LEONARD GREENBURG, M.D.,* who since 1935 has been executive director of the Division of Industrial Hygiene and Safety Standards, New York State Department of Labor, with offices in New York City, has been appointed as the first commissioner of the New York City Department of Air Pollution Control.

CARL W. HAMMER, M.D., city-county health

officer for Bozeman and Gallatin Counties (Montana) is on educational leave for graduate studies in public health at the University of Michigan, Ann Arbor.

CLARA A. HARDIN former secretary for economic education with the National Board of the YWCA, has been appointed associate executive secretary of the American Nurses' Association (New York City) to direct the ANA Research and Statistics Program.

MARCIA HAYS, M.D.,* chief of the Bureau of Crippled Children Services, California State Department of Public Health (San Francisco), late in 1952 was in Japan for five weeks under the auspices of WHO upon the request of the Japanese government as a short-term consultant on problems associated with its crippled children program.

JOHN M. HEPLER,* with the Michigan Department of Health for nearly 34 years, and for the past 12 years director of the Division of Engineering, has resigned to become chief sanitary engineer in Santiago, Chile, with the Institute of Inter-American Affairs. He has been succeeded by WILLARD F. SHEPHARD, with the Department since 1920 and for many years chief of the Section of Sewerage and Sewage Disposal.

ELIZABETH STEELE HOLEY formerly at Duke University Hospital, Durham, N. C., is now nutritionist, West Virginia State Department of Health, Charleston.

JOHN C. HUME, M.D.,* assistant director and associate professor of public health administration, Johns Hopkins School of Hygiene and Public Health, has succeeded C. E. WALLER, M.D., retired, as chief of the Division of Venereal Disease Control, Maryland State Health Department, Baltimore.

FLORENCE HURST is the newly appointed nutritionist at the Rochester-Olmsted County Health Department, Minnesota, dividing her time between the Health Department and the Mayo Clinic.

LILLIAN A. JOHNSON, R.N., M.A.,† formerly health nurse, Community Service Society, New York City, has been appointed by the Rockefeller Foundation to serve as adviser in the reorganization of the Nursing School, Trivandrum, Travancore-Cochin, India.

HELEN ANN KARDYS,† who received a master of science degree in public health from Yale University School of Public Health in June, 1952, is now assistant health educator, Connecticut Tuberculosis Association, located in Hartford.

WILLIAM KANZINGER,† formerly assistant director, Division of Foods, Drugs, and Hotels, is now director of the Division of Sanitation, Kentucky State Health Department, Louisville.

COL. WILLIAM J. KENNARD, USAF,† chief, Medical Section, Logistics Division, Supreme Headquarters Allied Powers in Europe at Paris, has been promoted to brigadier general.

FRANKLIN J. KILPATRICK, public health engineer in District No. 3 of the Minnesota Department of Health (Rochester) for the past five years, has been made coordinator of district sanitary activities for the Department.

O. P. KIMBALL, M.D.,† chairman of the Subcommittee on Endemic Goiter of the Committee on Administrative Practice of the APHA, attended a WHO meeting on the prevention of endemic goiter in London, England, December 8–12.

HERBERT E. KLARMAN, PH.D.,† formerly with the Council and for the past year medical economist, National Security Resources Board, has been appointed assistant director of the Hospital Council of Greater New York.

CARL O. KOHLBRY, practicing pediatrician, has been appointed full-time medical director of the public schools of Duluth, Minn.

ESMOND R. LONG, M.D.,* director of research, National Tuberculosis Association, and director of the Henry Phipps Institute, University of Pennsylvania, Philadelphia, has succeeded DETLER BRONK, PH.D., as the representative of the National Academy of Science of the U. S. National Commission of the United Nations Education, Scientific and Cultural Organization, New York.

EDWARD H. MARSH, M.D.,* has retired after 21 years of service in the Westchester County Department of Health, White Plains, N. Y., as deputy commissioner. Dr. Marsh has served public health in New York State for 35 years. He served as a colonel in the Army Medical Corps in World War II and is a past president of the Westchester County Tuberculosis and Health Association.

GORDON MAU, chief of the Water Pollution Control Section of the Division of Sanitation, Kansas State Board of Health, Topeka, is studying environmental sanitation in England and Western Germany under a WHO grant. He left New York on October 10, 1952, for two months as one of 10 sanitary engineers in the United States to receive similar experience.

RALPH W. MCCOMAS., M.D.,† formerly chief of the Health Services Branch, Division of International Health, Public Health Service, has been appointed director of the Bureau of Maternal and Child Health, Florida State Board of Health, Jacksonville.

THELMA S. MINER, M.D.,† has been made dis-

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* Fellow.
† Member.

trict health officer, Division of Health Services, New York State Department of Health, assigned to the Jamestown District Office.

GEORGE L. MOORE, M.D., who has been associate professor of surgery and cancer coordinator at the University of Minnesota School of Medicine, Minneapolis, has resigned to become director of the Roswell Park Memorial Institute, Buffalo, a cancer unit of the New York State Health Department.

DONALD C. MORRIS, former editor of the *University of Chicago Magazine*, has been made managing editor of the *Crippled Child Magazine* and *Bulletin*, National Society for Crippled Children and Adults, Chicago, Ill.

MARION C. MORRIS, Ph.D., former associate on the staff of the Division of Infectious Diseases, Public Health Research Institute of the City of New York, is now assistant director of the Division of Professional Education, Medical Department, National Foundation for Infantile Paralysis, New York City.

EDISON E. NEWMAN, former sanitarian, Department of Health and Hospitals, City and County of Denver, is now sanitarian, assigned to the Milk, Food and Drug Section, Colorado State Health Department, Denver.

LYDIA NEWTON, formerly director of the speech and hearing program for the Arizona Society for Crippled Children and Adults, is program consultant for the National Society for Crippled Children and Adults, Chicago, Ill.

JAMES E. O'NEIL, formerly with the Pyrene Manufacturing Company, Newark, N. J., has been appointed director of industrial service, National Society for the Prevention of Blindness, New York City.

J. HENRY PEDERSON has resigned from the Fort Worth District Office, Public Health Service, to accept employment with the American Cyanamid Company at its plant in Fort Worth, Tex.

LESTER PETRIE, M.D.,* director of the Preventable Diseases Division of the Georgia Health Department, late in 1952 was on a three-month mission to Turkey to plan an industrial hygiene program under the auspices of WHO.

CHARLES PINCKNEY,† has been appointed health educator of the Health Education Section of the Colorado State Health Department, Denver.

CECIL M. PIRRONG has been named personnel assistant, Oklahoma State Department of Health, Oklahoma City, succeeding J. O. ROGERS, resigned to enter private business.

RICHARD J. PLUNKETT, M.D.,† editor of special publications, American Medical Association, has been appointed secretary of the Association's newly established Committee on Mental Health formed primarily to consider problems that exist today in psychiatry and mental health.

JEANNETTE POTTER,† Public Health Service nurse officer, who recently received high honors in Greece, has been assigned as chief nurse to the public health program in Burma, under the Point Four Technical Aid Program.

DAVID E. PRICE, M.D.,* for the past two years associate director of the National Institutes of Health, has been appointed to the newly created post of assistant surgeon general, Public Health Service, Washington, D. C.

DR. K. C. K. E. RAJA,* New Delhi, India, was in attendance at the Eightieth Annual Meeting of the APHA, in Cleveland in October, 1952. Dr. Raja has recently retired after four years in the post of director general of the health services, Government of India. He is now in the United States studying medical and public health education.

JACKSON C. RHUDY, former child welfare worker in the juvenile court of Fayette County, is now administrative assistant, Bureau of Mental Health, West Virginia State Department of Health, assigned to the Huntington Guidance Clinic for Children and Adults.

DICK RIEMENSNIDER, former medical technician in the laboratory of the Army Hospital at Camp Carson, is now bacteriologist, Laboratory Section, Colorado State Health Department, Denver.

DONALD G. ROBERTS, M.D., medical officer in the Navy for two years with the rank of lieutenant, has been made assistant chief, Tuberculosis and Chronic Disease Section, Colorado State Health Department, Denver.

DR. J. W. DUDLEY ROBINSON, secretary of the Royal Sanitary Institute of Great Britain and of the Sanitary Inspectors Examination Board, retired at the end of 1952 after a quarter of a century during which time he organized the Society's annual congresses and was responsible for the operation of the examination system under which 68,000 candidates were examined and saw the Institute's membership double itself. At a luncheon given by the Council on October 14, 1952, Dr. Robinson was presented with an inscribed silver rose bowl and a check on behalf of the Fellows, members and associates of the Institute.

GLADYS M. SCHUERMAN,† former assistant professor of nursing in the School of Nursing Education, University of Colorado, is now consultant in generalized public health nurs-

ing, Division of Public Health Nursing, Montana State Health Department, Helena.

SARRAH JUDY SILSBEE,† formerly public health educator in the Case Finding Bureau of the Department's Division of Tuberculosis, has been appointed senior public health educator, Office of Public Health Education, New York State Health Department, and assigned as consultant to the Department's Central Office staff in Albany.

ALTON A. SMAHL, M.D., epidemiologist and medical consultant, New York City Health Department, is on a two-year leave of absence to serve WHO as public health specialist for Asia and the Middle East, for the control and eradication of the treponemal infections—syphilis, yaws, pinta, and bejel.

ROGER W. SPERRY, assistant professor of anatomy, University of Chicago, has become chief of the Section on Developmental Neurology for the combined research programs of the Institute of Neurological Diseases and Blindness and the Institute of Mental Health, Public Health Service.

ELINOR STANFORD, Public Health Service nurse officer, since 1947 a teacher and supervisor at Massachusetts General Hospital School of Nursing, has been assigned to assist in the cooperative public health program in the Philippine Islands, Manila.

ANNA M. STEFFEN, R.N., president of the California League of Nursing Education and member of the United States delegation to the UN-sponsored World Health Assembly in 1951, has been appointed director of nursing for the new $2,500,000 Kaiser Permanente Hospital in Los Angeles and consultant to other Kaiser Permanente hospitals in Southern California.

JEANNE STROM, R.N., former Wright County public health nurse, has been appointed nursing supervisor of Region No. 2, Iowa State Health Department, with headquarters at Fort Dodge.

PROFESSOR C. H. STUART-HARRIS of Sheffield, England, Fellow of the Royal College of Physicians and one-time Foulerton Research Fellow of the Royal Society, and member of the staff of the Rockefeller Institute, has joined the staff of the Division of Laboratories and Research of the New York State Health Department (Albany) as a visiting scientist.

C. J. VAN SLYKE, M.D.,† former director, National Heart Institute, has been made associate director of the National Institutes of Health, Bethesda, Md. He has been succeeded by JAMES WATT, M.D.,* who for the past several years has been in charge of the field laboratory of the National Microbiological Institute, Louisiana State University Medical School.

WILLIAM P. YANT,* director of research and development for Mine Safety Appliances Company, Pittsburgh, Pa., has been elected vice-president for industry of the National Safety Council, and chairman of that organization's Industrial Conference.

GRACE WHITE, M.A.,† who since 1945 has been professor of social work in the New York School of Social Work, New York City, has resigned to become professor of medical social work at the State University of New York College of Medicine, Syracuse, N. Y.

HERSCHEL M. WRIGHT, registrar of vital statistics, Indiana State Board of Health since September, 1917, retired in September, 1952, after 35 years of service.

DEATHS

JAMES W. BARKLEY, M.D.,† Humphreys County health officer, Belzoni, Miss., on March 7, 1952 (Health Officers Section).

BARNETT COHEN, C.P.H.,* associate professor of physiological chemistry, Johns Hopkins University, Baltimore, Md., on October 22, 1952 (Food and Nutrition Section).

J. M. CORAM, M.D.,† health officer, Raleigh County Health Department, Beckley, W. Va., on August 1, 1952 (Health Officers Section).

MARY T. DAVENPORT, M.S.,† nutritionist, Delaware State Board of Health, Dover, on September 11, 1952 (Food and Nutrition Section).

HERBERT G. DYKTOR,* commissioner, Cleveland City Division of Air Pollution, in October, 1952 (Industrial Hygiene Section).

HOWARD M. ENGLE, M.D.,† of San Francisco, Calif., on October 6, 1952 (Unaffiliated).

AMOS H. ENGLEBECK,† president, Summit County (Ohio) General Health District (Unaffiliated).

JAMES NUCKOLLS, D.D.S.,† professor of operative dentistry, University of California, San Francisco, in April, 1952 (Dental Health Section).

R. G. TUCK, M.D.,† deputy health commissioner, Oakland County Health Department, Royal Oak, Mich., in June, 1952 (Health Officers Section).

LYMAN H. WHEELER, M.D.,† health officer, City of Lockport and medical consultant, Niagara County Welfare Commission (New York) on November 7, 1952 (Health Officers Section).

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* Fellow.
† Member.

F. EDWARD WHITEHEAD,* health executive, River Edge and Oradell Health District, New Jersey, on August 27, 1952 (Health Officers Section).

GEORGE WOLFF, M.D.,† military intelligence research officer (Medical) Office of Surgeon General, Division of Preventive Medicine, Department of the Army, Washington, D. C., on September 16, 1952 (Epidemiology Section).

CONFERENCES AND DATES

Coming in January, February, and March:

American Academy of General Practice. St. Louis, Mo. Mar. 23–26.

American Association of Schools of Social Work. St. Louis, Mo. Jan. 21–24.

American College of Chest Physicians. Philadelphia, Pa. Mar. 23–27.

American Society for Public Administration. Hotel Statler, Washington, D. C. Mar. 6–8.

American Society of Heating and Ventilating Engineers. Chicago, Ill. Jan. 26–29.

American Water Works Association:
Indiana Section. Indianapolis. Feb. 11–13.
New York Section. Luncheon Meeting. New York City. Jan. 20.

Annual Congress on Industrial Health. Drake Hotel, Chicago, Ill. Jan. 21–22.

Council of Social Work Education. St. Louis, Mo. Jan. 21–24.

Iowa Public Health Association. Hotel Ft. Des Moines. Des Moines. Mar. 5–6.

Medical Education and Licensure—49th Annual Congress. Palmer House, Chicago, Ill. Feb. 9–10.

National Health Council. New York, N. Y. Mar. 19–20.

National Society for the Prevention of Blindness. New York, N. Y. Mar. 18–20.

Public Health Records and Statistics. Washington, D. C. Mar. 24–27.

Texas Public Health Association. Buccaneer Hotel, Galveston. Feb. 15–18.

United States-Mexico Border Public Health Association. El Paso, Tex. Mar. 26–27.

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Equitable Life Assurance Society of the United States, New York, N. Y.
John Hancock Mutual Life Insurance Company, Boston, Mass.
Hellige, Inc., Garden City, N. Y.
Hoffmann-La Roche, Inc., Nutley, N. J.
Holland-Rantos Company, Inc., New York, N. Y.
International Association of Ice Cream Manufacturers, Washington, D. C.
International Association of Machinists, Washington, D. C.
International Equipment Company, Boston, Mass.
Lederle Laboratories Division, American Cyanamid Co., New York, N. Y.
Liberty Mutual Insurance Companies, Boston, Mass.
Licensed Beverage Industries, Inc., New York, N. Y.
Life Insurance Co. of Virginia, Richmond, Va.
Lily-Tulip Cup Corporation, New York, N. Y.
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Modern Sanitation—Powell Magazines, Inc., New York, N. Y.
National Dairy Products Corporation, New York, N. Y.
National Farmers Union, Denver, Colo.
New York Hotel Trades Council and Hotel Association Health Center, Inc., New York, N. Y.
Orkin Institute of Industrial Sanitation, Atlanta, Ga.
Oval Wood Dish Corp., Tupper Lake, N. Y.
Owens-Illinois Glass Company, Toledo, Ohio
Prudential Insurance Company of America, Newark, N. J.
Sealright Company, Inc., Fulton, N. Y.
Sharp and Dohme, Inc., Glenolden, Pa.
E. R. Squibb and Sons, New York, N. Y.
Steiner Sales Company, Chicago, Ill.
Sun Life Insurance Company, Baltimore, Md.
Textile Workers Union of America, New York, N. Y.
Travelers Insurance Company, Hartford, Conn.
UAW-CIO (United Automobile, Aircraft and Agricultural Implement Workers of America), Detroit, Mich.
Union Central Life Insurance Company, Cincinnati, Ohio
Union Health Center, New York, N. Y.
United Steelworkers of America, Pittsburgh, Pa.
Upjohn Company, Kalamazoo, Mich.
Winthrop-Stearns, Inc., New York, N. Y.
Wyeth, Inc., Philadelphia, Pa.

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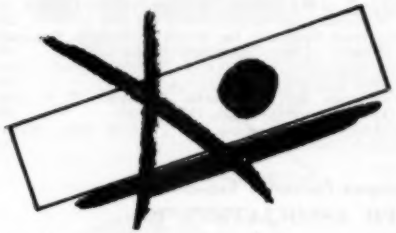

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- Absorbed B Serum to differentiate between A_1 and A_2
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